AN EVALUATION OF DESIGN FOR APPROPRIATE ACTIVITY SETTINGS THROUGH ANALYSIS OF PARK USE

By

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"Parks are planned by, managed by, and used by people. At times planners and designers of recreation areas have failed to recognize the need to balance planning, parks and people" (Hultsman & Cotrell 1987, p. 4).

CHAPTER I
INTRODUCTION

Everyone shares common needs with each other. Each person also has individual needs and ways of expressing and meeting those needs. Recreational design involves balancing individual needs and societal needs. "Knowing what shared needs to expect is important, but discovering the unique needs of a neighborhood is a key to socially suitable design" (Hester 1984, p. 57).

"The process of determining user needs is a very difficult one for we have to take account of the wide range of needs that any group of individuals will have" (Wurman, 1972). Varying degrees of interest and public use are dependent on individual preferences. Obviously, not everyone likes to exercise on a jogging trail and not everyone likes to socialize on a park bench.

Ask yourself this question: Who is the park for? Users are the most visible recipients of the efforts of planners and designers, but others benefit or suffer from park designs as well. People go to parks and recreation areas for a variety of reasons. Basically, they go to relax, refresh themselves, and to have fun. Plans for these areas should be developed to enhance the experience of the user. Confusion should be minimized. Convenience, safety and useability should be maximized. The way the park is designed can make the difference between an enjoyable or frustrating experience for visitors (Hultsman & Cotrell 1987, p. 8).

Relevance of Research to Design Profession

This research augments studies and reports which have previously been conducted within the fields of park and open space planning, recreational planning, urban design and landscape architecture. The results are important to landscape architects and urban planners who are interested in increasing their sensitivity toward users and acquiring an understanding of how best to integrate design solutions with user needs.

The importance of user needs studies is increasingly evident in the design professions. All too often, spaces are designed without regard to what the public needs or desires; ultimately they fail. Results of user needs studies can greatly assist the landscape architect when communicating ideas to political officials, city commissioners and other decision makers. Information resulting from research of this type lends support to the designer's professional recommendations regarding design solutions that are sympathetic to user needs. Thus, knowledge in this area supports the argument that the landscape architect be included in collaborative design and implementation efforts, with a united focus on achieving a useful and successful project.

Scope and Objectives

The purpose of this research is to evaluate the design of appropriate activity settings through an analysis of park use. The Arkansas River corridor park in downtown Wichita, Kansas will serve as a basis or setting for the research (Figure I.1). The study focuses on the relationship between Randolph Hester's user needs criteria of neighborhood space, namely appropriate activity settings, and the applicability of this specific criterion to park design. Hester, a landscape architect and member of the faculty in landscape architecture at the University of California at Berkeley, is a nationally recognized figure in researching user needs and environmental design. His book, Planning Neighborhood Space with People, focuses on small parks and open spaces and stresses social suitability and user needs as the major determining factors in the success of neighborhood spaces.

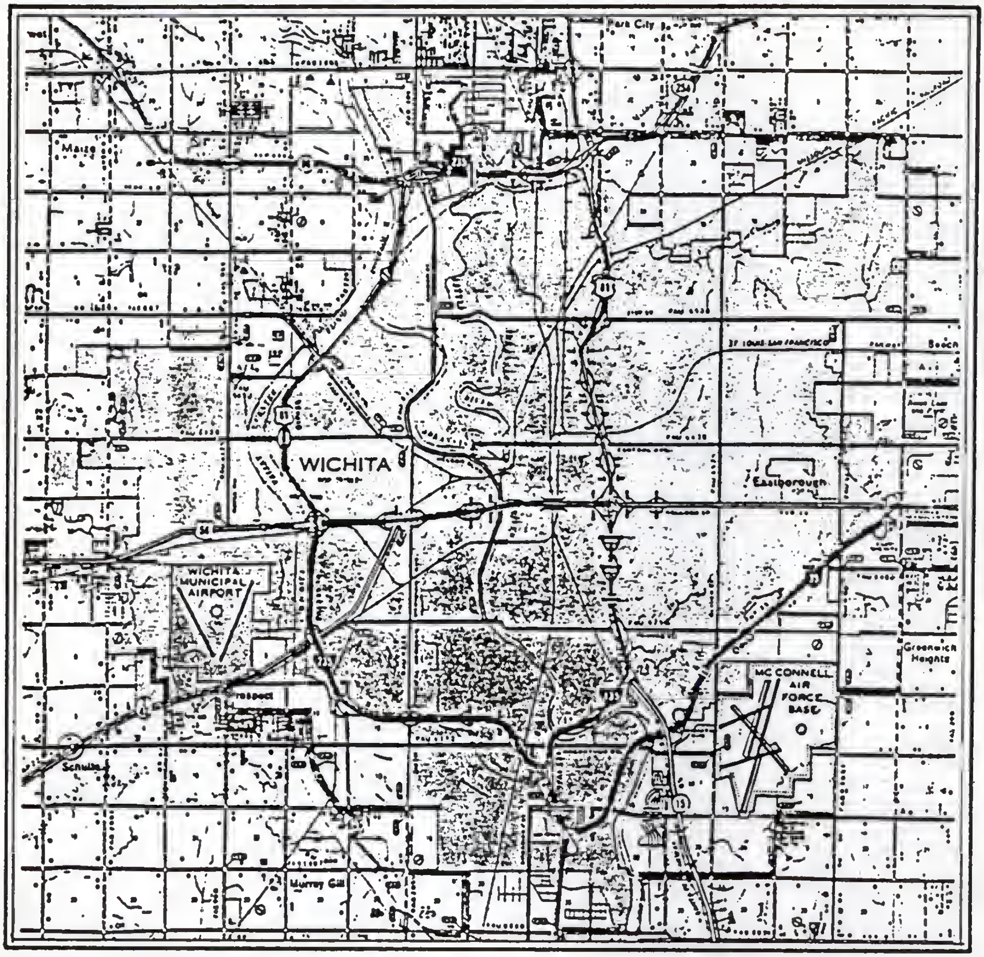

Figure I.1 Wichita Vicinity Map, 1985.

This research will attempt to evaluate design of a park through analysis of park user responses. Through analysis of survey results regarding the use of various activity settings within the park, strategies for design improvement will be developed.

The objectives of this research are summarized in the following questions.

1. How can Randolph Hester's criteria for a successful neighborhood space, namely appropriate activity settings, be applied to the large urban park context?

2. How can one best measure appropriate activity setting use in order to understand and improve design of the park?

3. How important is the designer's attention to user needs in park design?

Thesis Format

In Chapter II background information which is relevant to this study is reported. (Note: Operational definitions of key terms used in this study are located in Appendix C: Operational Definitions). A historical perspective of Arkansas River corridor development is given in order to establish an understanding of, and appreciation for, the issues addressed in the chapter. User needs, as introduced by Hester, will be reviewed and applied to the design process. The role and responsibilities of the designer will be discussed in relation to these user needs.

Information presented in Chapter III includes an explanation of the research intent, the research hypotheses and the research design. A detailed description is given of the observational techniques employed, the survey instrument development and administration and the statistical analyses of the data.

The results of this study are presented in Chapter IV, which also summarizes the data collected and describes the statistical methods used in the analysis of this information.

Chapter V includes an evaluation of the study and an interpretation of results as they relate to the original research hypotheses. Future research possibilities and interests stimulated by this study will also be discussed in this chapter.

CHAPTER II
BACKGROUND

The background portion of this thesis will be divided into five (5) parts: 1) historical perspective; 2) Arkansas River corridor development; 3) open space and park classification; 4) the work of Randolph Hester including user needs and their application to the design process; and 5) park design and use.

Historical Perspective

Wichita was founded at the confluence of the Arkansas and the Little Arkansas Rivers because of the existence of these natural resources. Wichita, like many cities in the United States, originated as a river settlement relying on river transportation. As the importance of this diminished, most cities turned their backs on the riverfront, leaving their riverside industries and the general quality of the open space to slowly decay. This did not happen to the same degree in Wichita because the railroad quickly emerged as the primary transportation link attracting business and industry away from the river early in the city's life. The importance of these rivers, however, was later recognized in long range plans for the community.

In June 1917, the first City Planning Committee was appointed to study city planning and report on the feasibility of securing a plan for Wichita. Ten thousand dollars was raised to provide a base for the new studies. One of the first actions taken by the commission was to authorize Harland Bartholomew Associates of St. Louis, Missouri, to proceed with preliminary studies that led to the 1923 Comprehensive City Plan for Wichita (Oblinger-Smith 1977). A detailed plan and perspective of the proposed Arkansas River corridor improvements is shown in Figure II.1.

The plan proposed an elaborate system of parks and parkways relating to the rivers and streams within the Wichita city limits and beyond. It had a strong emphasis on the park system tied together physically by parkways. Several of the overall concepts and elements of the plan were carried out, however, many others were ignored.

Mr. L. W. Clapp served for nearly three decades in numerous capacities in Wichita city government and leadership roles. He was largely responsible for the development of the park system which Wichita now enjoys. He expounds on the city's park resources by stating:

> "The topography of the city's setting is not one of natural grandeur, but it is studded all over with most appealing potentialities...There is one underlying element which predetermines the finality of city development in the best form. That element is parkways" (Oblinger-Smith 1977).

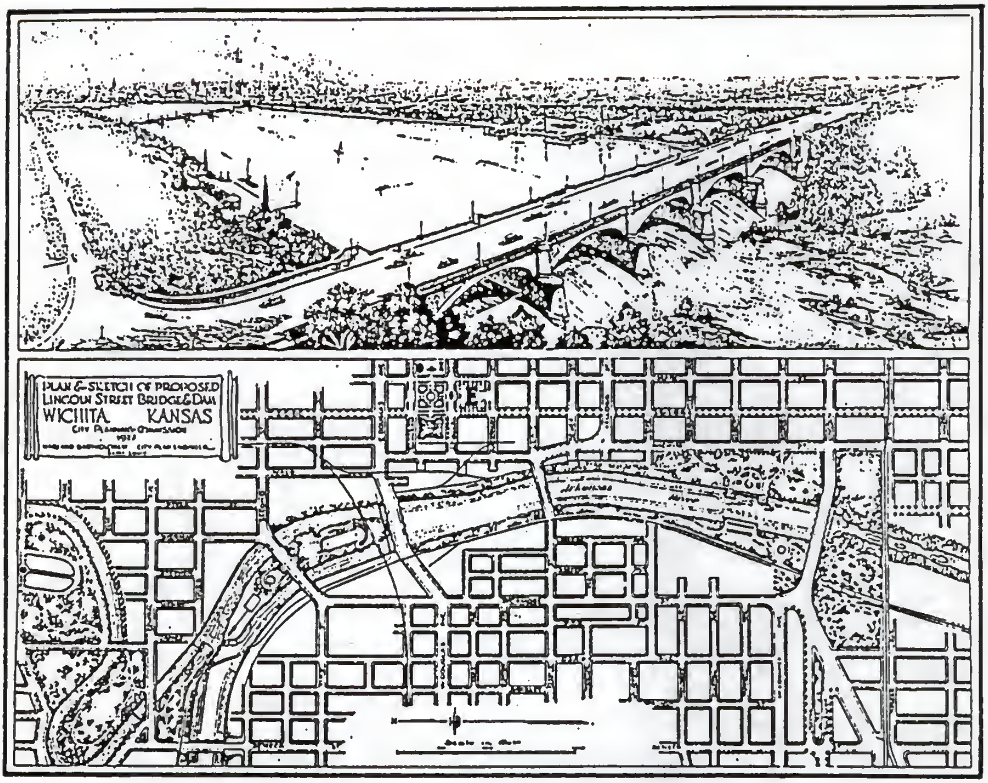

Figure II.1 Oblinger-Smith, 1977.

Although much of the area has long since disappeared as a natural resource, Mr. Clapp's influence was duly felt.

The emphasis on parkways diminished in later plans such as the Comprehensive Plan of 1946 and in subsequent plans. Nonetheless, if Wichita had moved to implement the 1923 Master Plan, many of the city's future needs would have been met and successive plans would not have been required (Oblinger-Smith 1977). Wichita's early leadership was indeed far sighted.

Another important development on the Arkansas River occurred in the late 1970's. The firm of Oblinger-Smith of Wichita, was selected to prepare a comprehensive master plan for downtown Wichita and the Arkansas River corridor (Figure II.2). Many of the concepts from the 1923 Comprehensive Master Plan were retained and embraced in the new plan. Oblinger-Smith proposed concentrated development all along the Arkansas River corridor. However, due to the lack of funding and public support, very little of the overall plan was adopted. The corridor was developed as a multi-use linear park with various interspersed amenities providing nodes of varying activities and uses. Currently, the park's design remains unchanged since its inception in the late 1970's.

Over the last several decades Wichita has experienced sustained and respectable economic growth. Although

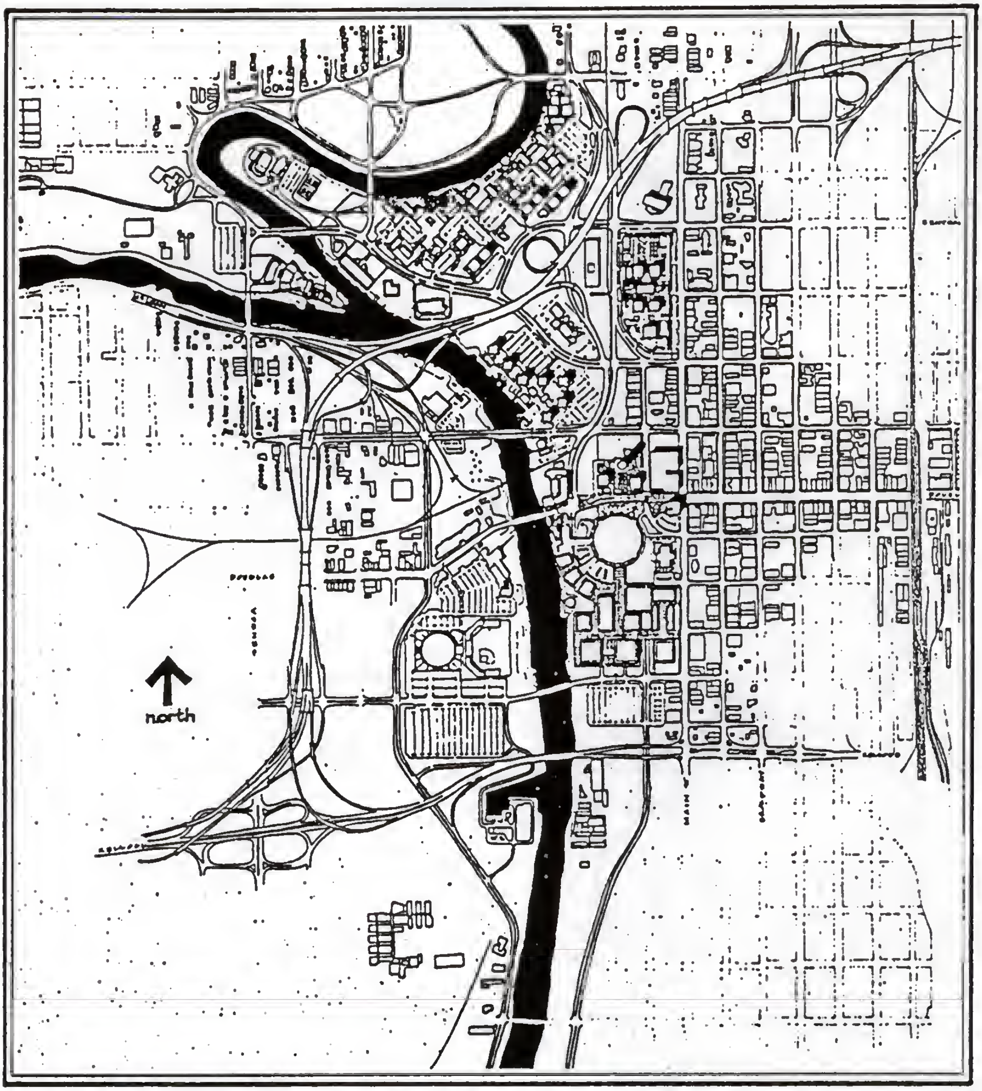

Figure II.2 Oblinger-Smith, 1977.

several of the major employment sectors have been slowing down in recent years, Wichita finds itself in a fortunate position. It has much of the industrial base, human resources, technology and long traditions of entrepreneurship required to succeed in the new economy of today (RTKL, 1987).

While downtown Wichita shared in some of the past growth, much of this growth has served to drain rather than reinforce the vitality of the downtown area. The central business district is losing ground as the commercial heart of the region and suburban competition has captured an increasing share of employment, housing and shopping (RTKL, 1987).

The previous statements affirm the position and sentiment of a growing number of urban planners and city officials in that, the time has come to revitalize downtown Wichita. The initial steps are currently underway in developing a new concept.

RTKL, a multi-disciplinary firm from Dallas, Texas was selected in 1988 to complete a master plan for development of downtown Wichita, the Arkansas River and adjacent areas (Figure II.3). The proposal stresses Arkansas River corridor development as the cohesive element that will underlie the success of the project. RTKL proposes a use for every space with high density development a priority.

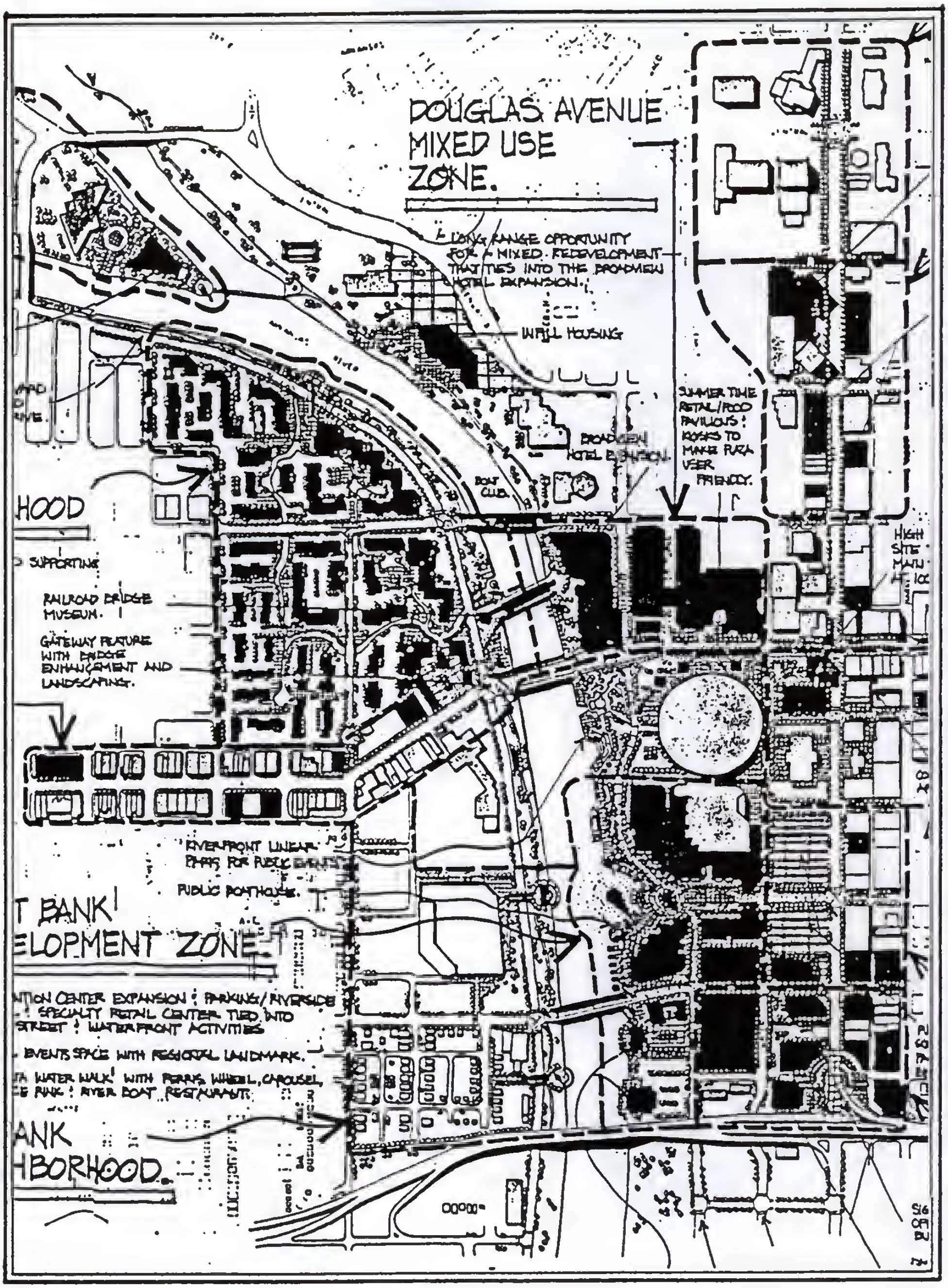
DOUGLAS AVENUE MIXED USE ZONE.
LONG RANGE OPPORTUNITY FOR MIXED REDEVELOPMENT THAT TIES INTO THE BROADVIEW HOTEL EXPANSION.
INFILL HOUSING
SUMMER TIME RETAIL/FOOD PAVILIONS: KIOSKS TO MAKE PLAZA USER FRIENDLY.
BROADVIEW HOTEL EXPANSION.
BOAT CLUB
HOOD
SUPPORTING
RAILROAD BRIDGE MUSEUM.
GATEWAY FEATURE WITH BRIDGE ENHANCEMENT AND LANDSCAPING.
RIVERFRONT LINEAR PARK FOR PUBLIC EVENTS
PUBLIC BOATHOUSE.
T BANK ELOPMENT ZONE
NTION CENTER EXPANSION: PARKING/RIVERSIDE
SPECIALTY RETAIL CENTER TIED INTO
STREET: WATERFRONT ACTIVITIES
EVENTS SPACE WITH REGIONAL LANDMARK.
WATER WALK! WITH FERRIS WHEEL, CAROUSEL,
RINK: RIVER BOAT RESTAURANT.
ANK HBORHOOD.
HIGH SITE MAIN

Figure II.3 RTKL, 1987.

The Arkansas River Corridor Park

In response to the renewed realization that the Arkansas River corridor provides the lifeblood for downtown Wichita, concerted efforts are being made to embrace the river and its potential. The development of the Arkansas River corridor in downtown Wichita has been addressed as the preeminent recreation, entertainment and convention district of the city (Griffin 1988).

The city of Wichita has constantly struggled with how best to deal with the Arkansas River corridor and its link with the central business district. As have been discussed, several master plans have attempted to embrace the river as a vital part of redevelopment efforts. However, due to insufficient funds, a lack of public support or any number of other reasons, implementation of many design elements has not been realized. Nonetheless, current plans for redevelopment continue to stimulate interest to reinforce the city's tie with the Arkansas River.

The Arkansas River corridor park parallels the Arkansas River and bisects the city of Wichita and is considered the city's primary environmental asset (Figure II.4). The downtown core, east of the river contains urban plazas and potential open spaces. Opportunity to develop a positive relationship between open space, recreational activity and new development is strong.

A critical part of the downtown core is the convention center and civic functions housed in Century II. This facility attracts more regional and national traffic to the downtown area than any other single development. The adjacent Omnisphere and Science Center, Public Library and Historic Museum also offer opportunity for connections to development of the river corridor.

The west riverfront district is occupied largely by commercial, industrial and residential uses which lack cohesive or complementary patterns of development. Much of this thirty (30) plus acre parcel currently sits idle and awaits a viable development program.

Many Wichita cultural and historic attractions are in the Sim Park/Riverside area north of the confluence of the Little and the Big Arkansas Rivers: Old Cowtown Museum, a recreation of an 1870's frontier town; the Wichita Art Museum; the new botanical garden (Botanica); a public golf course; the Mid-America All-Indian Center; and the monumental Indian figure ("Keeper of the Plains"). These amenities provide remarkable and diversified assets for the city and river corridor development.

Today the river corridor is still relatively underdeveloped commercially and has evolved as a scenic linear park with some recreational uses. The annual ten day Wichita River Festival of parades, races and social events attests to the importance of the river to the city's identity. The river corridor offers a unique opportunity to establish even stronger links to the core area of downtown and surrounding multi-use areas.

Open Space

In its broadest sense, open space describes space which is not altered by man-made structures. It refers to land and water surfaces left open to the sky. The actual use, however, of open space is dependent upon an area's needs and stated goals as well as upon the open space resources themselves.

Open space in this study, is regarded as a valuable resource made available for public use. Parks are more specialized uses of that open space. In most instances parks are open spaces that have been developed with recreation facilities. The Arkansas River Corridor combines the freedom of open space opportunity with the more structured recreational settings to provide a varied and interesting park. Open space, when developed as parks can provide beautifying elements for the urban environment, which in turn provide economic and aesthetic benefits for the public.

The Arkansas River system is considered one of the most valuable open space assets in the metropolitan area, therefore, it is appropriate that concerted efforts be employed to protect and improve upon this natural resource (Wichita 1976). The river's recreation and aesthetic potentials continue to be significant. In addition to providing visual relief from the urban scene, the Big and Little Arkansas Rivers offer the public a chance to personally participate in active recreation. With these basic concepts in mind, the classification system for parks in the Wichita metropolitan area was developed.

Park Classification

The Wichita park system classifies parks of five (5) types: playground, neighborhood, community, semi-regional and special use. Each park's classification was the result of the park's size, available facilities and population served. The Arkansas River Corridor Park is included in a system of interconnected parks known as the River Park complex. This system is classified as a semi-regional park. Specific areas within the Arkansas River Corridor Park have been designated as special use areas, however, for this study, the park will be classified as a semi-regional facility.

The semi-regional park is thought of as being large in size and naturalistic in character. It is being looked to more and more for the answer to providing the recreational escapes desired by the urban dweller (Wichita 1986). When determining semi-regional park needs, the entire metropolitan area is used as a planning basis rather than the separate planning areas. These parks are generally large areas provided with a variety of facilities and they are heavily used and enjoyed by the people of the metropolitan area.

The Work of Randolph Hester

Everyone shares common needs with each other. Each person also has individual needs and ways of expressing and meeting those needs. Recreational design involves balancing individual needs and societal needs. "Knowing what shared needs to expect is important, but discovering the unique needs of a neighborhood is a key to socially suitable design" (Hester 1984, p. 57).

These words reflect the general intent of Planning Neighborhood Space with People, written by Randolph T. Hester, Jr., faculty member in landscape architecture at the University of California at Berkeley. Hester expressed concern regarding whether or not the design professions have been responsive to the needs of the public. Were the designer's elitist criteria for designing space compatible with the criteria the residents used in deciding whether or not to use the space? Hester found conflicting results. He devised a systematic means of analyzing user needs and applied the results to the design process. The major purpose of this book's second edition, was to create an awareness throughout the design professions regarding the importance of user needs and appropriate design processes.

User Needs

"By thinking of an outdoor space close to home and then listing all the reasons why one goes there, an idea of the factors important to one's use of that space emerges" (Hester 1984, p. 57). These responses were combined with the responses of others and a pattern of personal preferences was derived directly from the users. Hester conducted numerous studies in an attempt to uncover social suitability patterns and to identify recurring needs for diverse groups of people. Listed below in Table II-1, are aspects of "neighborhood space" that people say influence their use of that space.

1. People one wants to do an activity with or without.
2. Appropriate settings for the activity one wants to do.
3. Relatedness through interaction with the natural environment.
4. Safety.
5. Aesthetic appeal.
6. Convenience.
7. Psychological comfort.
8. Physical comfort.
9. Symbolic ownership.
10. Policy on use.
11. Cost.

TABLE II-1 User Needs Checklist (Hester 1984).

This research will focus on user need number two (2); appropriate settings for the activity one wants to do. The concept of appropriate activity settings is considered by the users and designers to be one of the most important determinants of use of a particular space. These settings are determined by the physical aspects of linear parks, that is, the location and the site characteristics.

"As to location, people are most often concerned about the compatibility of the surrounding neighborhood with the desired activities" (Hester 1984, p. 59). For example, a river running adjacent to a quiet neighborhood may provide an excellent place for a quiet family picnic, but may not be an appropriate place for teenagers to hang out late at night.

Perhaps more important to the user are the site characteristics. How many access points are there to the park? Does the park provide space for creative usage? Do the linear trails adequately accommodate bicyclers, joggers and walkers?

Often site characteristics are perceived differently by the user and by the designer. While the designer may see a dense thicket of vegetation as a potential nighttime safety hazard, children may regard it as a great meeting place for after school games. Designers have the difficult task of determining what activity settings the users want, what activities the site is capable of supporting, and how to best communicate this to the users. Hester states, "As a general rule, outdoor spaces are most successful when they are as adaptable as possible, yet still accommodate the highest priority activity settings of users" (Hester, 1984).

Application of User Needs to Design Process

Once the user needs have been determined, the designer is confronted with the task of fitting this new information into his/her design process. As has been mentioned, design criteria of the user and designer often conflict, thus complicating the design process. Conflicts also arise because the user views the design process as part of an ongoing community development process. The designed space has to be maintained and altered to accommodate the ever changing users and their needs.

Park Design and Use

The Wichita-Sedgwick County 1976 Park and Open Space Plan notes that a city's "livability" is a many-faceted concept that is neither readily defined nor easily explained. It refers to the suitability of an area for living, working and playing. To a large extent, it is through our parks and open spaces that we find mental and physical relief needed to cope with modern living. We basically need two types of park areas; for active play as well as passive areas for aesthetic purposes (Wichita 1976).

It is the designer's responsibility to create multi-dimensional parks that offer a variety of opportunities to the user. Many factors contribute to the success or failure of a space. A flexible design can address the deficiencies of a space and be adapted to better meet user needs. Perhaps, this is best summed up by Hester as he states, "The public clearly needs well-designed, socially suitable, livable urban neighborhoods that allow for the growth of individuals and the change of neighborhoods in a context of holistic community development" (Hester 1984, p. x).

According to Hester, the designer has a responsibility to the user based on a simple premise. "The designer should respond to the needs of the users, to their collective public good, and individual property rights and private interests should be secondary to these public needs (Hester 1984, p. 21). These statements adhere to the concept that designed spaces should provide overall structure while permitting both long-term flexibility and multiple uses.

User Involvement

In order for any space to be successful it must have the support of those citizens it serves. A designer can develop an excellent plan for a space and watch it fail miserably if the public, for whatever reason, doesn't use the area. Fortunately, there is a way to help insure that people will take an interest in and accept areas for recreation use. "The key is to involve users in the planning process. This action has several benefits: it provides a needed source of information since nobody can tell you more about a group's needs than group members themselves; it is an excellent public relations tool, and it gives users a sense of having a vested interest in the area being planned" (Hultsman & Cotrell 1987, p. 58).

Although user involvement in the design process is an integral part of park planning, the topic will not be discussed at length in this study. However, the observational and survey techniques addressed in Chapter III represent methods in which the public can become involved in the design process.

Summary

A park development project may not be considered successful unless it is designed to be compatible with the needs of the user. Public spaces such as parks, walkways and plazas will not effectively serve their purpose unless they are functional and interesting. A linear pathway along the edge of the water may be enhanced by providing a variety of public spaces; in some places it may be a secluded, grassy hillside where people can sit and bask in the sun. In other places, it may be a shaded area where people from adjacent businesses congregate to eat lunch and/or converse.

The ultimate challenge of the designer is to learn the basics of planning parks for people and then use them to help solve park design problems. This means determining as many facts as possible about potential users and their program needs - and indeed any special park areas. Then based on analysis of these facts, the designer must plan facilities to meet the needs of the users (Hultsman & Cotrell 1987).

With this in mind, the following methodology, Chapter III, was developed to provide a systematic approach upon which the research could be based.

CHAPTER III
METHODOLOGY

The research methodology is a description of the issues that need to be examined, the questions that must be asked to understand the issues and the techniques or instruments to be used to answer each question. Chapter III will review the research intent and introduce the hypotheses and variables relevant to this research. It will also address the research design, the data collection phase and the analysis and synthesis of the data obtained.

Research Intent

The purpose of this research is to evaluate the design of appropriate activity settings through an analysis of park use. The study focuses on the relationship between the user needs criteria of neighborhood space, namely appropriate activity settings, as detailed by Randolph Hester in **Planning Neighborhood Space with People**, and the applicability of this specific criterion to park design. A case study of the Arkansas River Corridor Park in downtown Wichita, Kansas will serve as a basis or setting for the research. Through analysis of park use, design solutions may be generated to better respond to the user needs and to contribute to the success of the park.

Research Hypotheses

The research objectives listed in Chapter I, page 5 serve as a framework for hypothesis development. With these research objectives in mind, the following hypotheses were generated.

> Hypothesis 1
> The park activity settings may be used in any number of ways, thus, the design of varied activity settings in the park strongly influences how the space is used.
>
> Hypothesis 2
> Public use of this large urban park will show positive correlation to Hester's findings on public use in smaller neighborhood spaces.

Variables to be Examined

The research design used in this study involved the measurement of constructs. A construct is defined as an idea or image resulting from an arrangement of facts and impressions (Campbell and Stanley 1963). The major construct or dependent variable for this study is "park activity setting use". The supporting independent variables are: 1) design of park settings; 2) availability of preferred settings or activities; 3) park type preference; 4) distance one lives from park; 5) exposure to park and 5) demographic information including age, gender, ethnic identification, education and income.

The relationships among these variables and concepts were measured through on-site observation and use of a survey instrument. These data collection methods provided information about park use. Quantitative analyses were done to show the identifiable links between the variables. Descriptive measures further compare and contrast the study variables. These links and measures are illustrated in graphic form (Figure III.1).

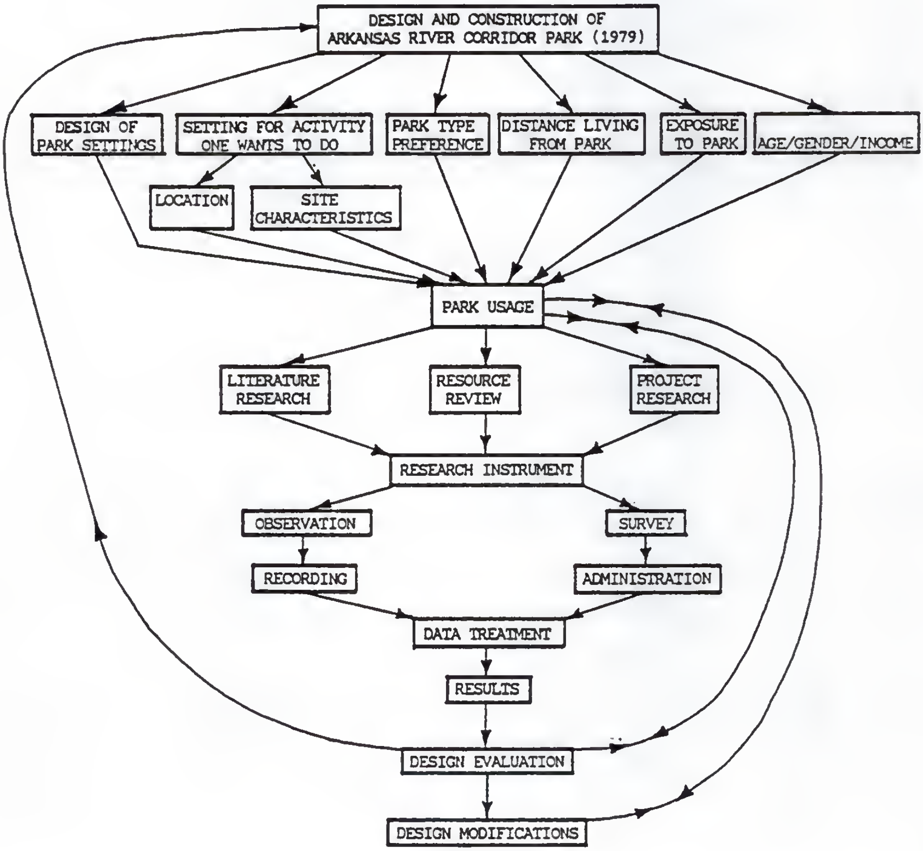

FIGURE III.1 Research Design Diagram

Research Method

In order to focus on user needs and how they might be considered in the design process, surveys were employed as the research tools to accomplish the research objectives stated in Chapter 1. Observational data were also collected and analyzed in order to serve as a check for the survey results. The information obtained through these methods cannot reflect all of the information critical to the design of park settings. However, this approach does provide valuable information about the needs of park users. From this information, more appropriate design solutions regarding park activity settings should be evident. A detailed description of the research method follows.

The research for this study was carried out in three phases:

1. Research design phase. Review of background information and the selection of the research tools to be employed in the study of park use and design.

2. Data collection phase. Application of the research instruments to collect data on park use and design.

3. Analysis and synthesis of data obtained. A descriptive analysis of the statistical techniques employed and of any conflicts arising in the research process.

Research Design

Several criteria were used in selection of a study site: 1) the park should be moderate in size; 2) park activity and use should be easily observed from a few select vantage points; 3) the park type should contrast to the neighborhood park model examined by Hester; and 4) the park should be within reasonable driving distance.

The Arkansas River corridor park fit these criteria and was chosen as the setting for the research.

Following site selection, an extensive literature search was conducted to gather background information essential in developing a historical perspective of the site. Development proposals of the Arkansas River corridor provided interesting information regarding evolution of the park.

Previously tested research as outlined in the book, Planning Neighborhood Space for People, by Randolph Hester, provided a basis for comparison of this large semi-regional park and Hester's more intimate neighborhood parks. The comparison of this study to Hester's extensive work in user needs and park design, brings credibility to the project and allows for interesting analogies.

Initially, site visits were conducted to include general observations on activities, settings and the physical aspects of the site. This was done to get a "feel" for the project. Also, through casual observation, physical traces were noted as clues to park use.

From synthesis of the background information, Hester's work and site visits, the research instruments were chosen. Direct observation would serve as a means to record what was actually happening on the site. A survey would provide specific information regarding public use of the park as well as perceptions as to how the park might be improved.

In conclusion, the design development phase was a general learning process for the researcher as well as a research design generating procedure. This phase of the research served to:

1. identify the specifics of the project and generate ideas on how best to deal with them.
2. focus ideas toward achieving a unified goal.
3. determine the most appropriate research tools for data collection.
4. increase the researcher's awareness of the importance of design practices that are responsive to user needs.

Data Collection

The two instruments that were used in the data collection process were direct observation and the survey. Although independent from the other, each served a vital role in the collection of meaningful data and as a check of the other.

Observational Method Development

Direct observation is to be used as a research instrument, noting as Zeisel suggests, "Who does what with whom and in what relationship, sociocultural context and physical setting?" (Zeisel, 1984). The researcher will remain a non-participant, that is, as McK.Agnew and Pyke relate, "A passive entity who merely observes and does not participate" (p. 60). Direct observation was used to help clarify the actual use of the Arkansas River corridor park and to identify any discrepancies with the survey results. The observational procedure that was employed follows.

Initially, the various settings and activities of the park were identified. A small scale base map of the park was located and copies were made for the recording of observational data. (See Appendix A: Observational Data Recording Sheet). The observed information was recorded directly on the base maps. Information that was to be identified and recorded, answered the following questions: 1)What settings or areas of the park were being used? 2)What activities were taking place? 3)Who was using the park? 4)What was their approximate age? and 5)With whom was the participant using the park?

This information was recorded at the outset and every two hours for the length of observation period. A select few vantage points allowed for observation of the entire site over a short period of time. This assured that the same persons traveling through the site would not be counted more than once. The two hour interval between recordings allowed for an influx of new users with each observation.

Three days were spent observing use of the site: Saturday, June 4, 1988 from 8 am to 4 pm; Friday, July 29, 1988 from 7 am to 3 pm and Monday, September 5, 1988 from 3 pm to 7 pm. Observational data from these three days provided insight into weekend use, weekday use and use on a holiday. Daytime and evening use were also represented in the observational time frames. Further information regarding the observational procedure and findings will be presented and discussed in Chapter IV, Results.

Survey Questionnaire Development

The mail survey was chosen as the primary research instrument. The mail survey method has the advantage of getting the response of large samples of people (Mck.Agnew and Pyke, 1987), however, the responses may be lightweight if precautions against bias are not taken. Respondents are more likely to express strongly negative opinions and be more truthful by mail. Overall, this method provides the most efficient instrument for a limited budget and resource investigation.

The survey instrument was developed to obtain specific information regarding public use of the Arkansas River corridor park. (See Appendix B: Cover Letter and Survey). Each question of the survey was organized by content into one of five different categories: 1)general information, 2)park comparison, 3)park use, 4)park design, and 5)park user characteristics.

The general information questions addressed each respondent's relationship with Wichita and his or her general use of the Arkansas River corridor park. Section 2 was designed to determine preferences among various park types. The park use section targets the individual's specific use of the park. Questions in the park design section seek to determine the respondent's impression of current park design and any improvements that could be made. Section 5 helps to demographically identify what kinds of people use the Arkansas River corridor park.

The mail survey procedure coincided closely with the "Total Design Method" as described by Donald Dillman in his book, Mail and Telephone Surveys: The Total Design Method (1978). Nearly all of the questions in the survey were constructed so as to provide a precoded response. However, several open-ended questions were used to uncover specific information that could later be manipulated in several ways. Following several questions, space was available for the respondent to qualify his or her response.

For purposes of this study, the response sets were not standardized. The primary goal of the survey was to allow the respondent as much flexibility as possible in his or her response. This allowed for measurement that more accurately reflected the respondent's needs and actual park use.

Pretesting the Survey. Following completion of the survey design phase, the cover letter and questionnaire were submitted to the Human Subjects Committee for approval. The survey was then pretested on a random sample of twenty-five (25) Wichita residents. This number represented one-tenth (1/10th) of final survey mailing and would hopefully provide data that would be representative of the final survey results. The intent of the pretest was threefold: to identify any problems in the questionnaire, to provide a test run of results and to get a rough estimate of the response rate.

The twenty-five (25) surveys were mailed the second week of October, 1988. Ten (10) surveys, or forty (40) percent of those distributed were returned. Based on a review of the pretested surveys, minor revisions were made to the survey instrument.

Survey Format. The survey questions (See Appendix B) were composed on 8 1/2" x 11" sheets utilizing a laser printer. The five (5) page survey was photocopied front and back of two (2) sheets and ended on the front of the third sheet. A small site map was printed on the first page of the survey in order to identify the boundaries of the park and to clarify any question regarding the various activity settings or use areas of the park. Personalized cover letters were laser printed on high quality 50 percent rag paper. The cover letters and survey forms were folded and packaged in legal size envelopes. A postage-paid self addressed return envelope was provided with each survey. No follow up post cards were sent to non-respondents.

Sample Selection. A simple random sample of the residents of Wichita, Kansas was taken. The essential idea is to give each unit in the sampling frame the same chance to be chosen for the sample as any other unit. Random sampling has a clear advantage over convenience sampling: it is fair and unbiased (Moore, p. 7). The random sample is designed to correct the over representation of one part of the population often produced by convenience sampling. In this study, it will be assumed that the random sampling of Wichita residents provides a representative population of

Arkansas River corridor park users.

A random numbers table was used as a means to determine the names of those who would be asked to participate in the survey. The 1988 Wichita Polk Directory was chosen as the source for survey participant selection. The Polk Directory lists all residents, even those without telephones or with unlisted numbers. In addition to telephone directory information, the Polk Directory provides spouse names. This allowed the researcher to perform quota sampling based on the gender of the survey participant. This sampling was based on the figures released in the 1987-1988 Wichita Community Profile, stating that the composition of Wichita residents was 51% female and 49% male. The first 300 random names were selected. If the household had two names, a coin was flipped to determine which member to select. After arriving at the first 300 names, the actual survey participant list was reduced to 250 by selecting the first 128 females (51%) and the first 122 males (49%).

Survey Administration. Two hundred and fifty (250) surveys were initially mailed during the first week of December, 1988. The study and it's objectives were described to the participants and their cooperation was requested. Within ten (10) days after mailing the survey, fourteen (14) were returned to sender. Additional surveys were mailed to the next fourteen (14) names, keeping in mind the quota sampling ratios. No follow-up letters were used in the survey administration process. From the two hundred and fifty (250) surveys that apparently reached their intended destination, ninety-one (91) were returned by the second week of January, 1989; a response rate of thirty-six and four tenths (36.4) percent.

Data Analysis and Synthesis

For this research, various activity settings within the park were identified and individually labeled for evaluation purposes, i.e. fountain and/or plaza areas, linear trails, waters edge. The data gathered and analyzed from the survey instrument regarding these settings were then used as determinants of design success and subsequent strategies for design improvement.

The intent of the questionnaire was to obtain information concerning mostly subjective opinions on park use and possible design improvements. In order to most fully realize this intent, inferential statistics were used as a primary tool.

Inferential statistics help to make informed judgments on the basis of small samples of data. They also, help determine how much confidence can be placed in the results. Inferential statistics are "merely maps of chance against which you can compare your findings and decide whether your results have gone beyond the limits of what you willingly accept as mere chance happenings. In addition, such statistics provide a model against which to compare your results" (Mck.Agnew & Pyke 1987, p. 186).

The chi-square test was used to help decide whether the distribution deviated significantly from chance. It is a comparison of frequencies and is most useful as a tool to test nominal scale data. Most of the survey responses were coded on the nominal scale. A few questions which most accurately represented the major thrust of the thesis were selected for chi-square test (see Chapter IV, Results: Cross tabulations). From the test, it was determined whether significant results were obtained.

The conventional level of acceptance for the chi-square test is (.95). This means that there is a very slim chance (less than 5 in 100), of obtaining these results by chance. Any results above .95 demonstrate that there is a significant relationship between the variables or questions. The chi-square test was especially useful as a tool in helping quantify the data and in providing a simple map of chance against which to compare the research results.

Another use of inferential statistics involved the use of sampling distributions which were obtained from response frequencies. One of the first acts in organizing data was to count how often each value occurred. Frequencies (numbers) and relative frequencies (proportions), were used to summarize data which had been coded in the nominal scale. Since rates or proportions are often more useful than frequency totals, percentages were derived from the corresponding frequencies. The frequencies (#) and relative frequencies (%) found for each of the survey questions are presented in table form in Chapter IV of the thesis. Supplementary text accompanies each set of frequencies to help explain and clarify the results.

In order to further analyze the survey results, cross tabulations were utilized. Cross tabulations became the tool most instrumental in explaining and comparing the relationships among the various concepts identified in the survey questions. These tabulations are variations of the frequency tables discussed above. They involve the measurement of two variables on each unit and form bivariate frequency tables. The resulting data carry much more information than do two sets of univariate data, i.e. each question by itself.

Several of the survey questions require the participant to make a subjective decision concerning a variety of opinionated responses. These types of questions were instrumental in determining the user's park perceptions, i.e. how the user would change or improve the park. Items more closely related to design and user perception allowed for creativity and flexibility of response to these more ambiguous subjects. Although, the more subjective questions were more difficult to statistically measure, they provided excellent opportunity to gather a more representative sample of user needs. From this large body of data, more appropriate and representative conclusions could be drawn.

Many of the survey questions allowed for the subject to qualify his or her response. Space was provided for the respondent to add a response or to explain why the question was answered the way it was. Any comments regarding any individual question or the survey in general, were encouraged throughout.

Guarding against Bias

Bias is continually a threat to research. It is defined as "a systematic deviation of the measured result from the 'true value' that perfect measurement would produce" (Moore 1979, p. 109). It is impossible to remove all sources of bias, however, many of the sources can be controlled through recognition and response to their presence.

The major source of potential bias was in response bias. The random survey selects an ideally representative sample of persons for the study. However, the response that is received may be tainted by several factors. For instance, there is often a tendency for those who use the park frequently to be more likely to fill out the survey than those who are not familiar with the park and have no affiliation with it. In order to respond to potential response bias, it was stressed in the cover letter that each person respond to his or her actual use of the park.

Another potential source of bias rests in sampling. The observational data that were recorded on three (3) different days, may or may not provide enough numbers to be a valid estimate of park use. Several other factors may affect the observational data. The time of day and day of the week are determinants of park use. Also, the time of the year and the weather conditions affect how the park is used.

The survey instrument could also show some sampling bias. The size of the sample was not large, in that less than one (1) in one thousand (1000) Wichita residents was selected for this research. Although larger samples reduce bias, the results of this research are statistically significant. This is evidenced by the overall response rate of thirty-six and fourth tenths percent (36.4%) and by the total survey mail out of 250 surveys.

The survey instrument was chosen as the primary means of gathering data because it reduced the chance of the 'on stage' effect. The 'on stage' effect is the reactivity of the respondent to what he or she thinks the researcher wants to hear. This rogue is very common in interviewing techniques, but does not significantly affect the survey results, which normally gather more honest responses. The respondent was also told in the survey cover letter that he or she was under no obligation to fill out the survey and that his or her name would be held in complete confidence.

Validity

The validity of the sampling is designed to answer one question; Does the process measure what it is designed measure? Keeping in mind the discussion on potential sources of bias and the following arguments, the answer is yes. Based on this discussion, it can be assumed that a representative sample was drawn and that the resulting conclusions can be drawn with confidence.

Validity of the conclusions of a study for the subjects of the study themselves is called internal validity. Generalization of the conclusions of a study to a larger population is sometimes called external validity.

Internal validity depends largely on statistical ideas. External validity depends largely on knowledge of the particular field of the study. External validity will be further addressed in Chapter V, Conclusions.

The following steps were applied in the design of the research in order to limit any threats to the validity of the survey data.

1) The variables of the study were specifically defined to enable future replication of the research in an equal context.

2) All recording and testing procedures were standardized and replicated in order to limit unequal treatment of the observational and survey instruments.

3) The survey was a random sample allowing all Wichita residents the same chance of being selected. All procedures in treatment of survey participants were identical.

4) Each of the two research instruments, the observational method and the survey, served as checks against the other to improve the validity of the results.

All efforts were taken to attempt to reduce the constant threats to validity. The limitations of a somewhat restrictive sampling were recognized and the subsequent generalizations and conclusions reflected this realization.

Chapter III, Methodology, has described the research approach and basis from which the research was conducted. The following chapter, Results, signifies a culmination of the research methodology and summarizes and presents the data which were gathered.

CHAPTER IV
RESULTS

The results of this study have been organized into the following three sections: Survey Response Analysis, Observational Findings and Survey Cross Tabulation Results. The Survey Response Analysis section presents the frequencies and percentages of each survey question as each appears on the survey instrument (See Appendix B: Cover Letter and Survey). A brief descriptive text accompanies each frequency table. The Observational Findings were compiled as a cross tabulation of park activity setting use by age and by gender. A discussion of these findings and of more general observations follow. The final section, Survey Cross Tabulation Results, meshes and compares the results of two questions or variables. This information specifically targets the survey questions that directly relate to the research hypotheses and research variables.

Survey Response Analysis

The following tables indicate the frequency of responses for each of the survey questions. Also included in each table is the percentage of each response as compared to the total number of responses for that question. The results are presented and discussed in the same order as the questions appear in the survey instrument (See Appendix B: Cover Letter and Survey). The accompanying text serves to pinpoint and analyze significant findings and to interpret any additional information. Noted under each question are the number of non-respondents to that question. Due to the fact that several respondents did not use the Arkansas River corridor park, there are a varying amounts of completeness to the survey, thus, the number of non-respondents for each question varies.

Question 1: **How long have you lived in Wichita?**

	Frequency	% of total
0-5 years	11	13.1
6-10 years	8	9.5
11-20 years	14	16.7
21-35 years	25	29.8
over 35 years	26	30.9
TOTAL	84	100.0%

* Overall mean...... 26.5 years
* Non-respondents... 7

The distribution reflects a stable population with 60.7% of respondents living in Wichita for over 20 years and 30.9% living in the city for over 35 years.

Question 2: **Approximately how long does it take to drive to the Arkansas River Corridor Park from your home?**

	Frequency	% of total
0-5 minutes	14	17.1
6-10 minutes	17	20.7
11-15 minutes	31	37.8
over 15 minutes	20	24.4
TOTAL	82	100.0%

*Non-respondents...9

There is a good distribution of persons living various distances from the park, although a majority, 62.2%, live more than 10 minutes driving distance from the park. This factor may influence frequency of park use and how the park is used.

Question 3: **How do you use the park most frequently?**

	Frequency	% of total
by myself	12	16.2
with one other person	29	39.2
with groups of 3 to 5	21	28.4
with groups of 6 to 10	6	8.1
with groups over 10	6	8.1
TOTAL	74	100.0%

* non-respondents...17

As would be expected, most persons use the park with a friend or as a member of a small group. 67.7% of park users stated that they use the park with from 2 to 5 persons. Those saying that they used the park with groups over 10 may have been referring to their use during the Wichita River Festival.

Question 4: **During an average visit, approximately how long do you spend using the Arkansas River Corridor Park?**

	Frequency	% of total
less that 15 minutes	4	5.6
15-30 minutes	17	23.9
31 minutes to 1 hour	21	29.6
between 1 and 2 hours	24	33.8
over 2 hours	5	7.1
TOTAL	71	100.0%

* non-respondents...20

The length of the average park visit varied greatly. However, 70.5% of park users spend over 30 minutes in the park on an average visit while few (5.6%) spend less than 15 minutes.

Question 5: **Do the activity settings or park facilities provide opportunities for involvement by a variety of people?**

	Frequency	% of total
yes	37	48.7
no	5	6.6
somewhat	34	44.7
TOTAL	76	100.0%

* non-respondents...15

Only 6.6% answered that the park settings did not provide opportunity by a variety of people. This suggests that, on the whole, few park users were dissatisfied with what facilities the park had to offer.

Question 6: **What percentage of your leisure time do you spend in each of the following types of parks?**

	% of total
large urban park	13.5
natural area park	14.2
community park	6.4
neighborhood park	18.1
other	10.8
TOTAL	63.0%

* Responses in the (other) category included: golf, the zoo, county/state lakes, and outdoor recreational facilities, i.e. softball, soccer

The total percent of leisure time spent in the various types of parks is well distributed with neighborhood parks receiving the most support. 52.2% of the respondents said they use one of the four major park types listed above, however, no attempt was made to define these parks or the activities that typically occur in each. The percentage not accounted for, up to 100%, was apparently used in pursuit of other leisure activities in different settings.

Number and Percentage of Respondents Using Each Park Type

	Frequency	% using each park type
large urban park	33	50.8
natural area park	38	58.5
community park	30	46.2
neighborhood park	50	76.9
other	15	23.1

* total number of respondents - 65
* non-respondents...26

The percent of respondents who use each of the above park types is relatively consistent, showing considerable use of all park types listed. Again, neighborhood parks show the most use as they are used by 76.9% of the respondents. Responses in the `other' category are listed in Part A of Question 6 above.

<u>Question 7:</u> **Do you prefer small neighborhood parks to large urban parks such as the Arkansas River Corridor?**

	Frequency	% of total
yes	45	62.5
no	27	37.5
	72	100.0%

* non-respondents...19

* Justification of those responding yes: big park too crowded, play equipment, more convenient, accessible, safer, more familiar, family use

* Justification of those responding no: like openness, more people to meet, more to offer, more aesthetic, quieter spots

The responses stated to justify or qualify each answer most effectively explain the results. Most persons use a park that is close to home, familiar and convenient for family leisure activities. However, three (3) out of every eight (8) respondents preferred the variety of activity settings and the larger size that the large urban park offers.

Question 8: What activity settings in the park do you use?

	Frequency	% of use
linear bike/walking paths	49	68.1
plaza to paved areas	33	45.8
fountain areas	34	47.2
water	9	12.5
water's edge	31	43.1
convenience stations/rest stops	15	20.8
areas beneath river bridges	6	8.3
joan of arc memorial	8	11.1
open areas	23	31.9
shaded areas	39	54.2
secluded areas	7	9.7
park benches	26	36.1
veterans memorial	5	6.9
dam/station house area	7	9.7

* total number of respondents - 72
* non-respondents...19
* responses taken only from those who use the park

The above frequencies were compatible with the frequencies found in the observational data. The major discrepancy in the survey results involves the response frequencies of the most used and least used settings. All responses except convenience stations/rest stops at 20.8% were above 31% or below 12%. This large gap may suggest the need for special consideration to be given toward redesign of the lesser used areas.

Question 9: **Which of the following best describes you current use of the Arkansas River Corridor?**

	Frequency	% of total
daily	1	1.1
2 to 3 times per week	4	4.4
1 time per week	4	4.4
1 time per month	6	6.6
several times per year	36	39.5
one time per year	21	23.1
never	19	20.9
TOTAL	91	100.0%

* non-respondents...0

The survey was administered in the first week of December and may have influenced the response frequencies, especially those who use the park most frequently. 83.5% of the respondents stated that they used the park several times per year or less. Many of those using the park one time per year, undoubtably use the park only during the Wichita River Festival. The 20.9% who never use the park either marked this response or stated on the survey that they did not use the park. These persons did not complete the park use questions, nonetheless, the fact that they returned the survey stating that they did not use the park, allowed for more accurate estimates of actual park use.

Question 10: "If I lived closer to the park my use would _______."

	Frequency	% of total
increase greatly	13	16.5
increase slightly	34	43.0
remain the same	32	40.5
decrease slightly	0	0.0
decrease greatly	0	0.0
TOTAL	79	100.0%

* Non-respondents...12

As would be expected, proximity to the park influences use. 100% of the respondents stated that his or her use would either remain the same or increase, should he or she lived closer to the park.

Question 11: "If the park offered more activities my use would ________."

	Frequency	% of total
increase greatly	11	13.8
increase slightly	38	47.5
remain the same	30	37.5
decrease slightly	1	1.2
decrease greatly	0	0.0
TOTAL	80	100.0%

* non-respondents...11

As expected, 98.8% said that their use of the park would either remain the same or increase with the addition of more activities. A relatively high number, 37.5% of the respondents who said that their use would remain the same, may suggest user satisfaction with what presently exists in the park. Justification for a decrease in use may point to the desire to retain the more secluded areas of the park for passive use.

Question 12: **The primary reasons you use the Arkansas River Corridor are because it is:**

	Frequency	% reasons for use
convenient	22	29.3
pleasant space to use	36	48.0
place to meet people	9	12.0
close to home	12	16.0
close to work	2	2.7
place to relax & get away	31	43.1
place to exercise	26	34.7
place to spend leisure time	30	40.0
place to do as I wish	12	16.0
connecting route	16	21.3
setting for special events	62	82.7
aesthetic	19	25.3
clean	30	40.0
well maintained	29	38.7
where the action is	4	5.3
safe	15	20.0
unique	11	14.7

* total number of respondents - 75
* non-respondents...16

The relatively high response rate in a number of categories may reflect user satisfaction. i.e. there are a number of notable reasons that influence how any one person may use the park. A high number, 43.1% of the respondents stated that the park provided a place to relax and get away. This may suggest that there should be a limit on the amount of future development in the park. The one week Wichita River Festival draws a vast number of people to the park, thus influencing the number of respondents using the park as a setting for special events.

Question 13: Does the park provide adequate spaces in which to do the activities you want to do?

	Frequency	% of total
yes	61	80.3
no	15	19.7
	76	100.0%

* non-respondents...15

The 19.7% who answered 'no' may seem a little high due to the fact that the park corridor is relatively large. However, the park's linear configuration and slopes limit many active recreational activities.

Question 14: Which response best describes how the various activity settings you use "fit in" with other park features?

	Frequency	% of total
very well	23	30.7
fairly well	28	37.3
somewhat	16	21.3
not at all	8	10.7
TOTAL	75	100.0%

* non-respondents...16

Only 10.7% of the respondents were dissatisfied with the 'fit' of the park activity settings. This suggests overall user satisfaction with the present blend of activity settings in the park.

Question 15: Do you prefer the more natural settings over the more structured settings in the park?

	Frequency	% of total
yes	53	68.8
no	24	31.2
TOTAL	77	100.0%

non-respondents...14

68.8%, represents a surprisingly large number of persons who prefer the more natural settings of the park. Any future design considerations should take this finding into account.

Question 16: Are the settings for the activities you want to do available in the park?

	Frequency	% of total
yes	17	22.4
many are	35	46.1
few are	19	25.0
no	5	6.5
TOTAL	76	100.0%

non-respondents...15

Only 6.5% of the respondents stated that the settings for the activities they wanted to do were not available in the park. Most respondents were satisfied with the availability of activity settings, although nearly one-third (1/3), apparently felt some changes were in order.

Question 17: **If given the opportunity to renovate the Arkansas River Corridor, what improvements would you make?**

	Frequency	% making imprvmts
increase active use areas	18	23.1
increase leisure opportunity	13	16.7
leave more natural areas	31	39.7
increase safety & security	31	39.7
stress linkages to downtown	20	25.6
stress west bank development	40	51.3
increase water use opportunity	22	28.2
increase trees	37	47.4
develop more private areas	10	12.8
redesign downtown area of park	13	16.7
increase variety of activities	19	24.4
better relate area to surrndgs	10	12.8
increase park exposure	25	32.1
provide better access	29	37.2
provide more shelters	17	21.8
provide rental equipment	18	23.1
increase social functions	23	29.5
redesign bike paths	8	10.3
upgrade maintenance	14	17.9
increase signage	2	2.6
increase parking	29	37.2
increase rest areas	22	28.2
add picnic facilities	35	44.9

* total number of respondents - 78
* non-respondents...13

* responses in the (other) category included: children play facilities; development similar to San Antonio w/ hotels, restaurants, shops; amphitheater on the river; ice skating facility; drinking fountains on bike paths; clean up river/keep water level up; remove troublemakers.

The responses to this question are particularly interesting because they reflect the creative and idealistic aspirations of the park user. The list of general park improvements was provided in order to generate a common set of measurable data. In addition, each respondent was allowed space to "write in" his or her own more personal ideas. A relatively high percentage of respondents stated that improvements should be made with the more functional elements of the park. Some specific target areas that were noted by greater than 35 percent of the respondents would be: increase trees, provide better access, increase parking, add picnic facilities and increase safety and security. The overall support for each response may reflect the premise that park users like a contrast in activity settings that provide a variety of potential uses.

Question 18: **Following redesign of the park, would you anticipate general park use to:**

	Frequency	% of total
increase	36	46.8
increase and then level off	29	37.7
remain the same	11	14.3
decrease	1	1.3
TOTAL	77	100.0%

* non-respondents...14

This question may have been slightly ambiguous. Park use will depend on the type and amount of changes that are made. As would be expected, a very low percent of the respondents stated that their use would decrease following redesign of the park. The high number of respondents who stated that their use would increase may signal a public need for a change through redesign of certain areas of the park.

Question 19: **Do you feel that the park settings were designed with:**

	Frequency	% of total
you in mind	17	24.6
other individuals in mind	13	18.8
larger groups in mind	22	31.9
little regard to the public	17	24.6
TOTAL	69	100.0%

* non-respondents...22

The high number of respondents who felt that the park settings were designed with little regard to the public is disturbing. Obviously, this group was not satisfied with the opportunities the park currently offers. On the other hand, just as many respondents seemed to feel a close tie to the park as was evidenced by their feeling that the park settings were designed with them in mind.

Question 20: **What is your present age?**

	Frequency	% of total
18-25 years	9	11.1
26-40 years	30	37.0
41-65 years	32	39.6
over 65 years	10	12.3
TOTAL	81	100.0%

* non-respondents...10

The distribution in age of respondents was quite good. The estimated percentage of Wichita residents in each of the above age groups is: 18-25 years - 22.9%, 26-40 years-29.6%, 41-65 years - 33.1%, and over 65 years - 14.4% (from Wichita Community Profile, 1987-1988 edition). The small number of 18-25 year old respondents may be influenced by the fact that many may be in school or live at home and have no independent home address. Slightly higher response rates in the 26 to 40 years and 41 to 65 years groups may be linked to the observational data findings which revealed considerable park use in these age groups.

Question 21: What is your sex?

	Frequency	% of total
male	37	46.3
female	43	53.7
TOTAL	80	100.0%

* non-respondents...11

Surveys were sent out to 128 (51%) females and 122 (49%) males. These numbers corresponded to the overall estimates of the Wichita metropolitan area (Wichita Community Profile, 1987-1988 edition). The percentages, by gender, of returned surveys (see above table) show no significant changes from the mail out survey percentages.

Question 22: Which of the following best describes your ethnic identification?

	Frequency	% of total
Black	4	5.0
Oriental	0	0.0
American Indian	1	1.2
Mexican American	1	1.2
Caucasian	75	92.6
other	0	0.0
TOTAL	81	100.0%

* non-respondents...10

The estimated percentages by ethnic identification or race in the Wichita metropolitan area are: Black - 7%, Oriental - 1%, American Indian - 1%, Mexican American - 3%, Caucasian - 87%, and other - 1% (from Wichita Community Profile, 1987-1988 edition). These figures do not differ significantly from the results displayed above. Due to the relatively small survey sample, the number of minority respondents is very low. Any tabulations regarding minorities would undoubtably produce results that would not be representative of the race.

The results for question 23 show a wide range in level of education attained, with no specific level seemingly over-represented. 37.1% of the respondents are college graduates while 75.3% have a minimum of some post high school education. The low number of respondents with less than a high school diploma may be reasonably accurate, however, response bias may influence the results.

Question 23: What is the highest level of education that you have attained?

	Frequency	% of total
some elementary school	0	0.0
some high school	3	3.7
high school diploma	17	21.0
some college	24	29.6
vocational school	7	8.6
bachelors degree	19	23.5
graduate degree	11	13.6
TOTAL	81	100.0%

* non-respondents...10

Question 24: What do you do for a living?

	Frequency	% of total
Manufacturing	11	16.4
Services	16	23.9
Government/City	3	4.5
Wholesale/Retail	14	20.9
Transport./Public utility	1	1.5
Finance/Ins./Real Estate	4	6.0
Construction	1	1.5
Homemaker	5	7.4
Student	3	4.5
Retired	8	11.9
Disabled	1	1.5
TOTAL	67	100.0%

* non-respondents...24

Due to the personal nature of this question, numerous respondents failed to disclose their profession. By categorizing the professions into the above groups, more meaningful conclusions may be drawn. Although the breakdown of employment is slightly different, the general trends follow those found in the Wichita metropolitan area study (Wichita Community Profile, 1987-1988).

Question 25: Would you please give us an estimate of your annual family income before taxes?

	Frequency	% of total
less than $10,000	3	4.0
$10,000-$14,999	5	6.6
$15,000-$19,999	7	9.2
$20,000-$24,999	7	9.2
$25,000-$34,999	15	19.7
$35,000-$49,999	22	29.0
$50,000-$99,999	15	19.7
$100,000 or more	2	2.6
TOTAL	76	100.0%

* non-respondents...15

Family income is a touchy subject. Several respondents failed to respond to this question while many others, no doubt, inaccurately reported their incomes. The results do, however, seem to reflect a large percentage of families (71.0%), with a yearly income of over $25,000. The median household effective buying income for the Wichita metropolitan area was estimated to be $28,884 (Wichita Community Profile, 1987-1988 edition). This figure was taken from the 1980 census and was rounded off to $29,000 for the purposes of this study. This figure will be a useful tool in later cross tabulations. It was determined that 61.8% of the survey respondents had family incomes over $29,000. This large number may reflect these respondents' greater use and/or concern for the Arkansas River corridor park.

Observation Findings

The findings of the observation phase of the research served as supportive information for the survey. Any results found in the survey may be confirmed or questioned by the observational data. The observational data was collected on three (3) dates in June, July and September, prior to issuance of the survey in December. An example of the recording forms for the observational data may be found in Appendix A: Observational Data Recording Sheet. The findings have been placed after the survey results for ease of interpretation and comparison with the survey data.

Information that was observed and recorded included: 1) the activity settings being used, 2) the activities taking place in these settings, 3) the gender of each participant, 4) the approximate age of each participant, 5) park use at a given time of day (in two hour intervals), and 6) the size of the group in which each participant was involved.

The majority of the observational data is displayed in Tables IV-1, IV-2 and IV-3. These tables summarize the data through use of cross tabulations of park activity setting use by age and by gender. A descriptive text accompanies each table in order to clarify and analyze the findings. Also included, is an analysis of the demographic information common to the observational and survey results. The supplementary information, i.e. date,

PARTICIPANTS BY AGE AND SEX

	MALE					MALE	FEMALE					FEMALE
ACTIVITY SETTINGS	0-17	18-25	26-40	41-65	over 65	TOTALS	0-17	18-25	26-40	41-65	over 65	TOTALS
Bike Paths	15	14	28	8	2	67/56%	12	6	17	3	1	39/53%
Plaza Areas	0	0	1	1	0	2/2%	1	1	2	2	0	6/8%
Fountain Areas	9	5	5	3	1	23/19%	5	1	6	3	0	15/21%
Water	3	2	1	0	0	6/5%	0	1	1	0	0	2/3%
Water's Edge	2	0	2	3	0	7/6%	0	0	3	4	0	7/10%
Convenience Stations	0	0	0	0	0	0	0	0	0	0	0	0
Areas Beneath Bridges	2	0	0	0	0	2/2%	0	0	0	0	0	0
Joan of Arc Memorial	0	0	0	0	0	0	0	0	0	0	0	0
Open Areas	0	2	0	1	1	4/3%	0	2	0	0	0	2/3%
Shaded Areas	2	0	1	0	0	3/3%	1	0	0	1	0	2/3%
Secluded Areas	0	0	0	0	0	0	0	0	0	0	0	0
Park Benches	0	0	0	2	0	2/2%	0	0	0	0	0	0
Veteran's Memorial	0	0	0	0	0	0	0	0	0	0	0	0
Dam/Shelter House	0	0	2	0	0	2/2%	0	0	0	0	0	0
AGE GROUP TOTALS	33	23	40	18	4	118	19	11	29	13	1	73 118

TOTAL PARTICIPANTS 191

* OBSERVATIONAL DATA TAKEN AT 2 HOUR INTERVALS FROM 8 AM TO 4 PM, SATURDAY, JUNE 4, 1988 - WEATHER: 75 DEGREES AND SUNNY, LIGHT BREEZE

Table IV-1 Cross tabulation: "Activity Setting Use" by "Age" and "Gender"

time, weather, etc., following each table, should be noted for its effect on park use. More general information regarding the overall findings of the observational periods will also be discussed in this section.

The findings from the Saturday, June 4, 1988 observational period from 8 am to 4 pm (Table IV-1), showed consistent use throughout the day. Undoubtably, the delightful weather influenced the number of park users as well as the types of activities being enjoyed. The bike/walking paths were used by over half of the park participants with the 26-40 age group showing the highest volume and percent of use. Male and female participation produced nearly the same percentages in most activity settings, however, 61.8% of the park participants for the observation period were male while 39.2% were female.

The Friday, July 29, 1988 observation period from 7 am to 3 pm was hot and humid. Nonetheless, as shown in Table IV-2, weekday park use was not significantly different from weekend use. Overall age group use was similar to other observational periods, while 63.8% of the users were male. The most significant finding from this data seemed to be the increased water use, especially by males. There were several individuals and groups fishing and canoeing during the day. The 26-40 age group showed the highest percentage of bike path use, 71.4%.

PARTICIPANTS BY AGE AND SEX

ACTIVITY SETTINGS	MALE					MALE TOTALS	FEMALE					FEMALE TOTALS
	0-17	18-25	26-40	41-65	over 65		0-17	18-25	26-40	41-65	over 65	
Bike Paths	12	3	30	13	3	61/59%	15	2	20	6	0	43/73%
Plaza Areas	0	0	2	1	0	3/3%	0	0	2	0	0	2/3%
Fountain Areas	0	3	1	1	0	5/5%	0	1	2	1	0	4/7%
Water	8	4	3	1	0	16/15%	2	1	2	0	0	6/10%
Water's Edge	1	2	2	4	0	9/8%	0	0	0	2	0	2/3%
Convenience Stations	0	0	0	0	0	0	0	0	0	0	0	0
Areas Beneath Bridges	0	0	0	0	0	0	0	0	0	0	0	0
Joan of Arc Memorial	0	0	0	0	0	0	0	0	0	0	0	0
Open Areas	0	0	0	0	0	0	0	0	0	0	0	0
Shaded Areas	0	0	1	1	0	2/2%	0	0	1	0	0	1/2%
Secluded Areas	0	0	0	0	0	0	0	0	0	0	0	0
Park Benches	0	0	3	0	0	3/3%	0	0	1	0	0	1/2%
Veteran's Memorial	0	0	0	0	0	0	0	0	0	0	0	0
Dam/Shelter House	2	2	0	1	0	5/5%	0	0	0	0	0	0
AGE GROUP TOTALS	23	14	42	22	3	104	17	4	28	10	0	59 104

TOTAL PARTICIPANTS 163

*OBSERVATIONAL DATA TAKEN AT 2 HOUR INTERVALS FROM 7 AM TO 3 PM,
FRIDAY, JULY 29, 1988 - WEATHER: 85 DEGREES, SUNNY & HUMID, 15 MPH BREEZE

Table IV-2 Cross tabulation: "Activity Setting Use" by "Age" and "Gender"

Observational information recorded on Monday, September 5, 1988 from 3 pm to 7 pm (Table IV-3), showed extensive park use through the session. The fact that this was a holiday and that the counts were taken during the late afternoon and early evening hours obviously played a role in the volume of park use and in what activity settings were used. The ratios of male and female park users were closer than in the other observational periods. A high percentage of males (79%), were found using the bike/walking paths, while females were found using the plaza/fountain areas with greater frequency than males.

PARTICIPANTS BY AGE AND SEX

	MALE					MALE	FEMALE					FEMALE
ACTIVITY SETTINGS	0-17	18-25	26-40	41-65	over 65	TOTALS	0-17	18-25	26-40	41-65	over 65	TOTALS
Bike Paths	21	19	31	3	2	76/79%	14	15	20	2	0	51/66%
Plaza Areas	●	●	2	●	0	5/5%	5	●	●	●	0	10/13%
Fountain Areas	0	0	●	0	0	5/5%	●	0	3	●	0	7/9%
Water	2	0	●	0	0	3/3%	0	0	0	0	0	0
Water's Edge	0	0	1	0	0	1/1%	1	0	1	0	0	2/3%
Convenience Stations	0	0	0	0	0	0	0	0	0	0	0	0
Areas Beneath Bridges	2	0	0	2	0	2/2%	0	0	0	0	0	0
Joan of Arc Memorial	0	0	0	●	0	0	0	0	2	0	0	2/3%
Open Areas	0	0	0	●	0	1/1%	0	2	1	0	0	3/4%
Shaded Areas	0	0	0	●	0	1/1%	0	0	0	0	0	0
Secluded Areas	0	0	0	0	0	0	0	1	0	0	0	1/1%
Park Benches	0	0	2	0	●	3/3%	0	0	1	0	0	1/1%
Veteran's Memorial	0	0	0	0	0	0	0	0	0	0	0	0
Dam/Shelter House	●	0	0	0	0	0	0	0	0	0	0	0
AGE GROUP TOTALS	26	20	42	6	3	97	24	21	29	3	0	77 97

TOTAL PARTICIPANTS 174

*OBSERVATIONAL DATA TAKEN AT 2 HOUR INTERVALS FROM 3 PM TO 7 PM,
MONDAY, SEPTEMBER 5, 1988 (LABOR DAY) - WEATHER: 80 DEGREES, PARTLY CLOUDY

Table IV-3 Cross Tabulation: "Activity Setting Use" by "Age" and "Gender"

Observation/Survey Comparisons

The following discussion will review the general conclusions that were drawn from the observational data. It will also compare some of the demographic information from the survey and observational methods.

The observational data provides the researcher with valuable information that may be used to support the survey data or question its results. However, due to the minimal observation periods spent in the park, the results cannot be highly scrutinized nor can much confidence be placed in them. Some general conclusions can, nevertheless, be drawn. For instance, the observational data does not take into account, persons doing more than one activity in the park. The bike/walking paths are connecting routes to other park features and were by far the most used setting in the park. The absence of park users over sixty-five years of age was interesting to note as only 11 out of 528 total participants (2%) were over sixty-five. Most of the activity centers around several park amenities while many areas of the park seem to be used very little. Another significant finding showed that there is considerable park use by the 0-17 age group. Twenty-seven (27%) percent of the participants observed were under 18. Unfortunately, this age group was not included in the survey mail out and comparisons to the observational data were not possible.

The observation and survey results of various age groups and of both sexes, provided some interesting comparisons. Although, the percentages of users, by age (see Table IV-15), of the bike/walking paths remained relatively constant in both the survey and observational data, the stated use of the remaining activity settings was quite different than the observed use. Park users obviously use more than one activity setting during a visit to the Arkansas River corridor park. The large discrepancies in observed and stated use may be attributed to the fact that varying amounts of time are spent using each activity setting. Since several of the settings lend themselves to activities that take long periods of time, these settings are the ones that appear to be used the most in an observational setting.

Also, some of the activity settings may serve a multiple purpose. For example, a person may be sitting on a park bench in a shaded plaza area while enjoying the fountain. This demonstrates the complexity of attempting to justify the significant differences in the observation and survey data with regard to activity settings.

When considering gender as the common denominator for observed park use and actual park use, the findings vary greatly. Through comparison of the survey data, Table IV-18, Cross tabulation: "Gender" by "Settings Used", and the observational data, Tables IV-1, IV-2 and IV-3, differences in male and female participation in the park settings may be evaluated. Many of the same arguments found in the previous paragraph concerning age and use, may be used to justify the discrepancies concerning gender and use. The stated and observed use of the linear paths and the water was consistent, however, use of many of the other activity settings was quite inconsistent.

Survey Cross Tabulation Results

In order to further analyze the survey results, cross tabulations were utilized. Cross tabulations become the tool most instrumental in explaining and comparing the relationships among the various concepts identified in the survey questions. The generated information specifically targets the survey questions which directly relate to the research hypotheses and research variables. Each cross tabulation will be presented in table form with all figures represented as a percentage of responses to that given variable. For reference to any given survey question, see to Appendix B: Cover Letter and Survey.

Cross Tabulations Relating to Research Variables

Cross tabulations were developed for specific questions that most effectively demonstrated the intent of the research variables. The research dependent variable and each of the independent variables are listed in the following pages. Following each variable, the related cross tabulations and a descriptive text analyze the relationships among the variables, the survey instrument and the research in general.

Dependent Variable: Park Activity Setting Use:

	LENGTH OF USE (QUES. 4)				
SETTINGS USED (QUES. 8)	less than 15 min.	15 to 30 min.	31 to 60 min.	between 1 & 2 hours	over 2 hours
Linear paths	75.0	82.4	66.7	66.7	40.0
Plaza areas	50.0	35.3	27.6	50.0	60.0
Fountain areas	50.0	35.3	38.1	58.3	80.0
Water	0.0	5.9	14.3	16.7	20.0
Water's edge	25.0	35.3	33.3	58.3	60.0
Convenience stations	25.0	11.8	9.5	29.2	60.0
Areas beneath bridges	0.0	5.9	9.5	12.5	0.0
Joan of Arc memorial	25.0	5.9	9.5	12.5	20.0
Open areas	25.0	41.2	19.0	37.5	40.0
Shaded areas	25.0	47.1	47.6	62.5	100.0
Secluded areas	0.0	0.0	14.3	12.5	20.0
Park benches	50.0	35.3	23.8	41.7	60.0
Veterans memorial	25.0	5.9	4.8	4.2	20.0
Dam/station house	25.0	0.0	4.8	16.7	20.0
%'S FROM TOTAL RESPONSE OF:	4	17	21	24	5

Table IV-4 Cross Tabulation: "Length of Use" by "Settings Used"

This cross tabulation, Table IV-4, supports the idea that the length of stay in the park influences the types of activity settings that are used. Certain activity settings demand a longer period of use. For example, those who use the water or water's edge for canoeing or fishing generally spend a considerable amount of time in the park. The overall percentages are generally higher for those using the park for more than 1 hour than for those using the park for a shorter time period. An explanation for the high percentage of linear path users, 82.4%, in the 15 to 30 minute time frame could be that the paths are being used as a through lane to a city-wide network of bike paths. The major conclusion that may be drawn from this cross tabulation is: as the time one spends in the park increases, the variety of activity settings used also increases.

	SETTING PREFERENCE (QUES. 15)	
PROSPECTIVE USE (QUES. 11)	yes	no
Increase greatly	7.6	29.2
Increase slightly	49.0	50.0
Remain the same	41.5	20.8
Decrease slightly	1.9	0.0
Decrease greatly	0.0	0.0
%'S FROM TOTAL RESPONSE OF:	53	24

* Chi-square .90

Table IV-5 Cross Tabulation: "Setting Preference" by "Prospective Use"

This cross tabulation, Table IV-5, attempted to discover the attitudes of park users preferring either natural settings or more structured settings and how an increase in activities would alter their use of the park. Not

Independent Variable: Design of Park Settings

	SETTINGS USED (QUES. 8)													
DESIGN IMPROVEMENTS (QUES. 17)	bike paths	plaza areas	fountain areas	water	water's edge	convenience stations	areas beneath bridges	Joan of Arc memorial	open areas	shaded areas	secluded areas	park benches	veterans memorial	dam/shelter house
increase active use areas	27	33	26	44	35	47	67	63	26	28	57	23	80	71
increase leisure opportunity	24	24	21	22	16	20	33	38	30	26	29	27	60	29
leave more natural areas	41	27	35	44	42	27	67	38	43	44	57	35	60	71
increase safety/security	37	45	35	89	42	40	50	25	30	46	71	42	0	43
stress linkages to downtown	29	36	38	33	29	33	50	88	39	28	43	35	80	43
stress west bank development	53	67	56	56	65	60	50	75	61	56	71	46	80	71
increase water use opportunity	33	30	35	56	42	20	50	75	30	31	71	38	80	71
increase trees	51	45	56	56	51	47	66	50	43	51	43	42	60	86
develop more private areas	12	12	18	11	23	13	17	25	17	18	57	19	40	29
redesign downtown area of park	18	24	18	33	32	27	33	25	30	18	43	15	40	43
increase variety of activities	25	33	21	44	26	40	33	38	39	31	43	31	40	57
better relate to surroundings	14	24	21	11	10	27	0	50	17	15	14	23	40	14
increase park exposure	41	45	35	44	45	33	33	38	39	33	43	35	60	43
provide better access	47	52	44	33	35	67	33	88	39	38	43	38	80	86
provide more shelters	24	18	21	33	26	47	50	38	30	36	29	27	40	29
provide rental equipment	22	27	38	44	39	40	33	75	22	36	57	35	60	57
increase social functions	27	48	38	56	45	40	17	50	22	46	57	35	60	43
redesign bike paths	14	18	15	22	13	20	17	50	13	15	29	15	60	43
upgrade maintenance	24	27	26	44	26	33	50	50	26	21	14	19	80	29
increase signage	4	3	3	11	3	13	17	13	9	5	14	4	20	14
increase parking	39	48	47	44	39	40	33	75	43	38	57	38	80	71
increase rest areas	37	27	41	22	32	67	33	75	39	31	71	38	80	43
add picnic facilities	55	52	59	44	52	67	50	63	57	67	57	65	60	14
%'S FROM TOTAL RESPONSE OF:	49	33	34	9	31	15	6	8	23	39	7	26	5	7

Table IV-6 Cross Tabulation: "Settings Used" by "Design Improvement"

surprisingly, a significant number, nearly 80%, of park users who preferred more structured settings, stated that their use would increase either slightly or greatly if more activities were to be added in the park. Their prospective use would show a greater increase than would the prospective use of those preferring the more natural settings.

The cross tabulation, Table IV-6, attempted to ascertain the overall design improvement needs as stated by the users of the various park activity settings. The general findings indicate the need to better incorporate the Joan of Arc and Veterans Memorials with the surrounding park amenities. Persons using each of these memorials stressed the need for stronger links to downtown, better access and parking, more rest area facilities and improved maintenance. Those persons using the plaza and fountain areas were found to prefer those settings to the more natural areas of the park. Conversely, persons using the secluded areas of the park supported an increase in more private areas of the park. An overall review of the percentages revealed consistently high percentages of park users, (40% and above), who found the need for west bank development, an increase in park trees and the addition of picnic facilities.

DESIGN IMPROVEMENTS (QUES. 17)	SETTING PREFERENCE (QUES. 15) yes	no
Increase active use areas	18.9	33.3
Increase leisure opportunity	15.1	20.8
Leave more natural areas	54.7	8.3
Increase safety & security	39.6	41.7
Stress linkages to downtown	18.9	41.7
Stress west bank development	37.7	83.3
Increase water use opportunity	24.5	37.5
Increase trees	50.9	41.7
Develop more private areas	17.0	4.2
Redesign downtown area of park	15.1	20.8
Increase variety of activities	20.8	33.3
Better relate area to surrdngs	9.4	20.8
Increase park exposure	26.4	45.8
Provide better access	34.0	45.8
Provide more shelters	24.5	16.7
Provide rental equipment	17.0	37.5
Increase social functions	26.4	37.5
Redesign bike paths	11.3	8.3
Upgrade maintenance	15.1	25.0
Increase signage	3.8	0.0
Increase parking	28.3	58.3
Increase rest areas	28.3	29.2
Add picnic facilities	41.5	54.1
%'S OF TOTAL RESPONSE OF:	53	24

Table IV-7 Cross Tabulation: "Setting Preference" by "Design Improvements"

The cross tabulation of setting preference and design improvements, Table IV-7, brought out the many interesting and significant conclusions. The opinions of the two groups of park users, those preferring more natural settings and those preferring more structured settings, contrasted greatly in regard to park design improvements. Of the 68.2% of park users preferring the natural settings in the park, 54.7% stressed the need for even more conservation of natural areas. Conversely, of those preferring structured settings, only 8.3% seemed concerned with retaining the natural areas of the park. Another major difference in opinion involved west bank development. 83.3% of those preferring structured settings encouraged west bank development, while only 37.7% of those preferring natural settings would stress development of the west bank. Overall, the response percentages of those preferring structured settings were higher on all items involving park development i.e. increase active use areas, stress linkages to downtown, increase park exposure, provide rental equipment and increase parking. On the other hand, those preferring more natural settings stressed design involving more trees and more private areas.

	GENDER (QUES. 21)	
DESIGN INTENT (QUES. 19)	Male	Female
You in mind	16.7	31.6
Other individuals in mind	30.0	10.6
Larger groups in mind	36.6	28.9
Little regard to the public	16.7	28.9
%'S FROM TOTAL RESPONSE OF:	30	38

Table IV-8 Cross Tabulation: "Gender" by "Design Intent"

The major conclusions drawn from the above cross tabulation, Table IV-8, involved the user's identification with the park. Nearly one third, 31.6% of the females felt the park was designed with them in mind while only 16.7% of the males felt the same personal identification with the park. The male respondents felt more strongly that the park was designed with other individuals or larger groups in mind. A relatively high percentage of respondents, of which 63% were female, felt that the park settings were designed with little regard for what the public wanted.

Independent Variable: Availability of Preferred Settings or Activities

	SETTINGS USED (QUES. 8)													
REASONS FOR USE (QUES. 12)	bike paths	plaza areas	fountain areas	water	water's edge	convenience stations	areas beneath bridges	Joan of Arc memorial	open areas	shaded areas	secluded areas	park benches	veterans memorial	dam/shelter house
convenient	41	33	29	33	32	40	33	63	30	31	14	31	80	43
pleasant space to use	63	67	68	44	65	60	83	75	57	51	57	58	100	57
place to meet people	12	15	15	11	16	27	50	13	22	18	43	15	20	14
close to home	20	21	12	22	19	33	17	25	22	23	0	19	20	14
close to work	4	0	0	0	0	0	0	0	0	0	0	0	0	0
place to relax & get away	49	45	56	78	65	67	83	88	61	49	86	58	100	71
place to exercise	51	39	38	44	45	53	50	63	43	33	43	38	60	43
place to spend leisure time	49	55	62	56	61	60	83	88	52	56	86	65	80	71
place to do as I wish	20	24	26	33	29	27	50	63	26	18	57	19	60	57
connecting route	22	21	18	33	16	33	33	50	13	15	29	15	60	29
setting for special events	86	94	88	100	94	100	100	88	91	92	86	38	100	86
aesthetic	37	33	29	22	29	40	17	63	43	23	29	38	40	43
clean	45	39	50	44	55	67	67	75	52	49	71	54	60	43
well maintained	45	45	41	44	48	60	50	63	57	44	57	58	60	43
where the action is	2	6	3	11	10	13	17	0	9	8	29	8	0	0
safe	27	21	21	22	26	27	0	50	39	26	29	27	60	43
unique	20	21	18	33	23	33	33	38	17	21	29	27	40	29
%'S FROM TOTAL RESPONSE OF:	49	33	34	9	31	15	6	8	23	39	7	26	5	7

Table IV-9 Cross Tabulation: "Settings Used" by "Reasons for Use"

This cross tabulation, Table IV-9, attempted to relate activity setting use and the reasons for use of these various settings. The response percentages of persons using the Joan of Arc and Veterans memorials were generally higher for certain reasons of use such as: convenience, a place to relax and get away, a place to do as I wish, and because it is safe. One explanation for these inflated figures may be that these memorials are located in the area

	AVAILABILITY OF SETTINGS (QUES. 16)			
DESIGN IMPROVEMENTS (QUES. 17)	Yes	Many are	Few are	No
Increase active use areas	11.8	22.9	27.8	100.0
Increase leisure opportunity	11.8	22.9	16.7	0.0
Leave more natural areas	41.2	40.0	38.9	0.0
Increase safety & security	47.1	31.4	50.0	50.0
Stress linkages to downtown	35.3	22.9	22.2	100.0
Stress west bank development	47.1	51.4	44.4	100.0
Increase water use opportunity	17.6	28.6	33.3	50.0
Increase trees	47.1	60.0	27.8	50.0
Develop more private areas	11.8	20.0	5.6	0.0
Redesign downtown area of park	23.5	20.0	16.7	0.0
Increase variety of activities	29.4	22.9	27.8	0.0
Better relate area to surrndgs	5.9	11.4	22.2	50.0
Increase park exposure	35.3	37.1	22.2	100.0
Provide better access	29.4	42.9	38.9	50.0
Provide more shelters	11.8	31.4	22.2	0.0
Provide rental equipment	5.9	34.3	27.8	0.0
Increase social functions	17.6	40.0	22.2	100.0
Redesign bike paths	0.0	14.3	11.1	50.0
Upgrade maintenance	17.6	22.9	16.7	0.0
Increase signage	5.9	0.0	5.6	0.0
Increase parking	35.3	37.1	44.4	0.0
Increase rest areas	29.4	37.1	11.1	0.0
Add picnic facilities	35.3	62.9	33.3	50.0
%'S FROM TOTAL RESPONSE OF:	17	35	18	2

Table IV-10 Cross Tabulation: "Availability of Settings" by "Design Improvements"

of the park that is very near high density residential housing. From this cross tabulation it is apparent that the majority of respondents use the park as a setting for special events. Over 85% of the users of any park setting, i.e. bike paths, plaza areas, water, open areas, etc., use the park as a setting for special events. These special events are most notably the Wichita River Festival and professional ski shows.

Table IV-10 displays the results of a cross tabulation of the availability of activity settings in the park and suggested design improvements. Of those who were satisfied with the availability of activities in the park, a comparatively small number felt the need for an increase in water use opportunity, shelters or rental equipment. On the other hand, of those who felt that if many of the activities were available, a comparatively large number felt improvements could be made by increasing the number of trees, shelters, rest areas and social functions and by adding picnic facilities as park amenities. Those responding 'no' to the question also strongly stressed redevelopment of the river corridor.

Independent Variable: Park Type Preference

PARK TYPE PREFERENCE (QUES. 7)	AGE (QUES. 20)			
	18 to 25	26 to 40	41 to 65	over 65
Yes	28.6	57.1	78.3	75.0
No	71.4	42.9	21.7	25.0
%'S FROM TOTAL RESPONSE OF:	8	28	23	8

Table IV-11 Cross Tabulation: "Age" by "Park Type Preference"

The respondents' preferences of park types were evaluated according to age groups in Table IV-11. In general, with 18 years as the youngest age surveyed, the younger the respondent, the less that he or she prefers smaller neighborhood parks to larger urban parks. Approximately a 3 to 1 ratio of respondents in the 18 to 25 age group preferred larger urban parks while a 3 to 1 ratio of respondents in the over 65 age group preferred smaller neighborhood parks.

Independent Variable: Distance Living from Park

This cross tabulation, Table IV-12, attempts to determine how the distance one lives from the park influences the amount of park use. As would be expected, the highest percentage of park use was by those living from 0 to 5 minutes drive from the park. 49.9% of these respondents

	PROXIMITY (QUES. 2)			
AMOUNT OF PARK USE (QUES. 9)	0 to 5 minutes	6 to 10 minutes	11 to 15 minutes	over 15 minutes
Daily	7.1	0.0	0.0	0.0
2 to 3 times per week	21.4	0.0	3.2	0.0
1 time per week	0.0	6.2	9.7	0.0
1 time per month	21.4	6.2	6.5	0.0
Several times per year	43.0	56.3	38.7	45.0
1 time per year	7.1	18.8	29.0	40.0
Never	0.0	12.5	12.9	15.0
%'S FROM TOTAL RESPONSE OF:	14	16	31	20

* Chi-square .96

Table IV-12 Cross Tabulation: "Proximity" by "Amount of Park Use"

stated that they use the park a minimum of 1 time per month. Conversely, all respondents (100%), who lived over a 15 minute drive from the park, stated their frequency of park use as several times per year or less.

Independent Variable: Exposure to Park

	AGE (QUES. 20)			
AMOUNT OF PARK USE (QUES. 9)	18 to 25	26 to 40	41 to 65	over 65
Daily	0.0	0.0	0.0	12.5
2 to 3 times per week	0.0	10.4	0.0	12.5
1 time per week	12.5	3.4	7.2	0.0
1 time per month	0.0	20.7	0.0	0.0
Several times per year	50.0	34.5	71.4	25.0
1 time per year	37.5	31.0	21.4	25.0
Never	0.0	0.0	0.0	25.0
%'S FROM TOTAL RESPONSE OF:	8	29	28	8

Chi-square .999+

Table IV-13 Cross Tabulation: "Age" by "Amount of Park Use"

The amount of park use by various age groups was useful in determining who used and how often they used the it (see Table IV-13). 34.5% of the 26 to 40 age group use the park a minimum of 1 time per month. A high percentage of persons in the 41 to 65 age group, 92.8%, stated that their use was limited to several times per year or less. The over 65 age group showed 75.0% using the park several times per year or less, however, the remaining 25.0% represented some of the most devout users of the park as they stated their use to be 2 or 3 times per week or greater.

AMOUNT OF PARK USE (QUES. 9)	GENDER (QUES. 21)	
	Male	Female
Daily	2.7	0.0
2 to 3 times per week	5.5	4.7
1 time per week	10.8	0.0
1 time per month	10.8	4.7
Several times per year	32.4	53.5
1 time per year	21.6	27.9
Never	16.2	9.3
%'S FROM TOTAL RESPONSE OF:	37	43

Table IV-14 Cross Tabulation: "Gender" by "Amount of Park Use"

Table IV-14 classifies the amount of park use by gender. Although a greater number of female respondents were found to use the park than male respondents, males frequency of use was higher. 29.8% of the males and 9.4% of the females stated their use to be 1 time per month or greater. The majority of women, 53.5%, use the park several times per year while only 32.4% of the males use it several times per year.

Independent Variable: Demographics - Age

The following cross tabulations concerning demographic information, i.e. age, gender, education and income, focus on the major questions of the survey, questions 8, 12 and 17. The most significant findings from these cross tabulations will briefly be discussed following each table.

The most interesting finding from this cross tabulation, Table IV-15, is that the 18 to 25 year age group uses all settings, except park benches and convenience stations, with greater frequency than do the other age groups. The 26 to 40 and 41 to 65 age groups use the linear paths more often than the other age groups, however, these same two groups use the other park settings less often that those under 25 and over 65. These differences may be explained by the amount of leisure time available and by the family responsibilities of the various age groups.

SETTINGS USED (QUES. 8)	AGE (QUES. 20) 18 to 25	26 to 40	41 to 65	65 & over
Linear paths	50.0	72.4	67.9	62.5
Plaza areas	37.5	51.7	35.7	42.2
Fountain areas	50.0	48.3	39.3	48.9
Water	37.5	10.3	7.1	20.0
Water's edge	75.0	34.5	39.3	51.5
Convenience stations	0.0	24.1	21.4	24.4
Areas beneath bridges	37.5	10.3	0.0	15.6
Joan of Arc memorial	12.5	10.3	7.1	6.7
Open areas	62.5	27.6	25.0	28.9
Shaded areas	62.5	58.6	50.0	66.7
Secluded areas	37.5	6.9	3.6	15.6
Park benches	12.5	37.9	35.7	35.6
Veterans memorial	12.5	3.4	3.6	6.7
Dam/station house	25.0	10.3	3.6	11.1
%'S FROM TOTAL RESPONSE OF:	8	29	28	8

Table IV-15 Cross Tabulation: "Age" by "Settings Used"

Several significant age group findings which differ from the other age groups are evident in Table IV-16. For instance, 18 to 25 year olds use the park because it is a place to meet people, a place to spend leisure time and a place to relax, get away and do as he or she wishes. The 26 to 40 age group says that the cleanliness of the park influences their use. The over 65 age group uses the park because it is a pleasant space to use and because it is safe.

	AGE (QUES. 20)			
REASONS FOR USE (QUES. 12)	18 to 25	26 to 40	41 to 65	over 65
Convenient	25.0	27.6	35.7	25.0
Pleasant space to use	37.5	51.7	46.4	62.5
Place to meet people	37.5	10.3	7.1	12.5
Close to home	12.5	24.1	10.7	12.5
Close to work	0.0	0.0	7.1	0.0
Place to relax & get away	75.0	44.8	32.1	37.5
Place to exercise	12.5	41.3	28.6	37.5
Place to spend leisure time	62.5	51.7	39.3	12.5
Place to do as I wish	37.5	20.7	7.1	25.0
Connecting route	25.0	13.8	17.9	25.0
Setting for special events	87.5	86.2	78.6	75.0
Aesthetic	12.5	31.0	28.6	12.5
Clean	25.0	51.7	39.3	25.0
Well maintained	12.5	48.3	42.9	25.0
Where the action is	12.5	6.9	3.6	0.0
Safe	25.0	24.1	10.7	37.5
Unique	0.0	24.1	10.7	12.5
%'S FROM TOTAL RESPONSE OF:	8	29	28	8

Table IV-16 Cross Tabulation: "Age" by "Reasons for Use"

With design improvements in mind the 18 to 25 year olds strongly stressed west bank development and an increase in variety of activity settings (see Table IV-17). The 26 to 40 age group felt a great need for more private areas and picnic facilities. The 65 and over age group showed strong support for more natural areas, upgraded maintenance, and increased parking and rest areas.

	AGE (QUES. 20)			
DESIGN IMPROVEMENTS (QUES. 17)	18 to 25	26 to 40	41 to 65	over 65
Increase active use areas	37.5	20.7	17.9	37.5
Increase leisure opportunity	12.5	24.1	10.7	25.0
Leave more natural areas	50.0	34.5	32.1	62.5
Increase safety & security	37.5	44.8	32.1	50.0
Stress linkages to downtown	37.5	20.7	25.0	50.0
Stress west bank development	75.0	48.3	53.6	37.5
Increase water use opportunity	37.5	34.5	21.4	25.0
Increase trees	37.5	48.3	50.0	50.0
Develop more private areas	12.5	58.6	3.6	12.5
Redesign downtown area of park	37.5	13.8	10.7	37.5
Increase variety of activities	37.5	17.2	21.4	25.0
Better relate area to surrndgs	0.0	17.2	14.3	25.0
Increase park exposure	37.5	37.9	28.6	37.5
Provide better acces	37.5	44.8	39.3	25.0
Provide more shelters	37.5	27.6	17.9	12.5
Provide rental equipment	25.0	27.6	21.4	25.0
Increase social functions	25.0	37.9	32.1	12.5
Redesign bike paths	12.5	17.2	7.1	12.5
Upgrade maintenance	37.5	17.2	7.1	50.0
Increase signage	0.0	3.4	0.0	12.5
Increase parking	50.0	34.5	32.1	62.5
Increase rest areas	37.5	31.0	17.9	50.0
Add picnic facilities	62.5	69.0	25.0	25.0
%'S OF TOTAL RESPONSE OF:	8	29	28	8

Table IV-17 Cross Tabulation: "Age" by "Design Improvement"

Independent Variable: Demographics - Gender

This cross tabulation, Table IV-18, finds that males seem to enjoy the settings that allow for more active participation than do females. Males show higher percentages in use of the linear paths, the water's edge, and open areas while the women show higher participation in settings such as the plaza areas, shaded areas and park benches.

	GENDER (QUES. 21)	
SETTINGS USED (QUES. 8)	Male	Female
Linear Paths	75.0	67.6
Plaza areas	40.6	54.1
Fountain areas	50.0	48.6
Water	12.5	13.5
Water's edge	59.4	32.4
Convenience stations	21.9	21.6
Areas beneath bridges	12.5	5.4
Joan of Arc memorial	12.5	10.8
Open areas	40.6	27.0
Shaded areas	43.8	67.6
Secluded areas	12.5	8.1
Park benches	21.9	51.4
Veterans memorial	6.3	8.1
Dam/station house	12.5	8.1
%'S FROM TOTAL RESPONSE OF:	32	37

Table IV-18 Cross Tabulation: "Gender" by "Settings Used"

The major differences in why one gender uses the park more often than the other are interesting to note (see Table IV-19). Females seem to prefer using the park as a place for leisure pursuits. On the other hand, males use the park because it is a pleasant space to use, a place to relax and get away and because it is clean.

REASONS FOR USE (QUES. 12)	GENDER (QUES. 21)	
	Male	Female
Convenient	33.3	28.9
Pleasant space to use	60.6	36.8
Place to meet people	15.2	10.5
Close to home	15.2	18.4
Close to work	0.0	5.3
Place to relax & get away	51.5	36.8
Place to exercise	39.4	34.2
Place to spend leisure time	33.3	52.6
Place to do as I wish	18.2	15.8
Connecting route	21.2	15.8
Setting for special events	81.8	84.2
Aesthetic	27.3	26.3
Clean	54.5	31.6
Well maintained	45.5	36.8
Where the action is	3.0	7.9
Safe	24.2	18.4
Unique	15.2	15.8
%'S FROM TOTAL RESPONSE OF:	33	38

Table IV-19 Cross Tabulation: "Gender" by "Reasons for Use"

Some of the design improvements suggested by a substantially greater number of men than women include an increase in water use opportunity and an increase in the number of trees planted (see Table IV-20). The women felt that park redesign should involve increased safety and security, rental equipment and the introduction of picnic facilities.

DESIGN IMPROVEMENT (QUES. 17)	GENDER (QUES. 21) Male	Female
Increase active use areas	18.2	28.9
Increase leisure opportunity	15.2	21.1
Leave more natural areas	39.4	39.5
Increase safety & security	21.2	55.2
Stress linkages to downtown	33.3	28.9
Stress west bank development	57.6	47.4
Increase water use opportunity	42.4	18.4
Increase trees	60.6	39.5
Develop more private areas	18.2	10.5
Redesign downtown area of park	18.2	18.4
Increase variety of activities	27.3	23.7
Better relate area to surrndgs	15.2	13.2
Increase park exposure	33.3	36.8
Provide better access	39.4	42.1
Provide more shelters	21.2	26.3
Provide rental equipment	18.2	31.6
Increase social functions	30.3	34.2
Redesign bike paths	6.1	18.4
Upgrade maintenance	18.2	21.2
Increase signage	6.1	0.0
Increase parking	39.4	42.1
Increase rest areas	27.3	31.6
Add picnic facilities	42.4	55.3
%'S FROM TOTAL RESPONSE OF:	33	38

Table IV-20 Cross Tabulation: "Gender" by "Design Improvements"

Independent Variable: Demographics - Education

Due to the inconsistency in response format, question number 23 in the survey (Appendix B), was divided between college graduates and non-college graduates. The major differences between the two groups were interesting to note (see Table IV-21). The college graduates favored the linear paths and Joan of Arc memorial while the non-college graduates preferred the water's edge, areas beneath the bridges and the shaded and secluded areas of the park.

	EDUCATION (QUES. 23)	
SETTINGS USED (QUES. 8)	College graduate	Non-college graduate
Linear paths	82.1	57.8
Plaza areas	50.0	42.2
Fountain areas	42.9	48.9
Water	0.0	20.0
Water's edge	28.6	51.1
Convenience stations	14.3	24.4
Areas beneath bridges	0.0	15.6
Joan of Arc memorial	17.9	6.7
Open areas	35.7	28.9
Shaded areas	32.1	66.7
Secluded areas	0.0	15.6
Park benches	35.7	35.6
Veterans memorial	7.1	6.7
Dam/station house	7.1	11.1
%'S FROM TOTAL RESPONSE OF:	28	45

Table IV-21 Cross Tabulation: "Education" by "Settings Used"

The differences in reasons for park use for college graduates and non-college graduates are not great, nevertheless, they warrant a brief explanation (see Table IV-22). The college graduates use the park because it is a pleasant space to use and because of its aesthetic qualities. The non-college graduates use is more dependent on the fact that the park provides a place to relax and get away and a place to spend leisure time.

	EDUCATION (QUES. 23)	
REASONS FOR USE (QUES. 12)	College graduate	Non-college graduate
Convenient	28.6	31.1
Pleasant space to use	53.6	42.2
Place to meet people	7.1	15.6
Close to home	14.3	17.8
Close to work	7.1	0.0
Place to relax & get away	32.1	48.9
Place to exercise	35.7	35.6
Place to spend leisure time	32.1	48.9
Place to do as I wish	21.4	13.3
Connecting route	17.9	17.8
Setting for special events	82.1	80.0
Aesthetic	42.9	15.6
Clean	32.1	46.7
Well maintained	42.9	37.8
Where the action is	0.0	8.9
Safe	21.4	20.0
Unique	14.3	15.6
%'S FROM TOTAL RESPONSE OF:	28	45

Table IV-22 Cross Tabulation: "Education" by "Reasons for Use"

The major emphasis for design improvement as stated by the college graduates was in the area of park exposure (see Table IV-23, following page). The non-college graduates seemed slightly more concerned about design improvements that should be made. These included the retention of the more natural areas of the park, increased safety and security, increased trees and a greater number of shelters.

	EDUCATION (QUES. 23)	
DESIGN IMPROVEMENTS (QUES. 17)	College graduate	Non-college graduate
Increase active use areas	21.4	24.4
Increase leisure opportunity	21.4	15.6
Leave more natural areas	25.0	48.9
Increase safety & security	28.6	44.4
Stress linkages to downtown	28.6	26.7
Stress west bank development	53.6	51.1
Increase water use opportunity	25.0	31.1
Increase trees	39.3	53.3
Develop more private areas	10.7	15.6
Redesign downtown area of park	14.3	20.0
Increase variety of activities	17.9	28.9
Better relate area to surrndgs	17.9	11.1
Increase park exposure	46.4	26.7
Provide better access	42.9	37.8
Provide more shelters	14.3	28.9
Provide rental equipment	21.4	26.7
Increase social functions	25.0	35.6
Redesign bike paths	10.7	13.3
Upgrade maintenance	21.4	17.8
Increase signage	0.0	4.4
Increase parking	35.7	42.2
Increase rest areas	32.1	26.7
Add picnic facilities	42.9	51.1
%'S FROM TOTAL RESPONSE OF:	28	45

Table IV-23 Cross Tabulation: "Education" by "Design Improvements"

Independent Variable: Demographics - Income

The following cross tabulation, Table IV-24, compares the responses to park design improvement with Wichita families above and below the median household effective buying income of $29,000. Respondents with family incomes below

$29,000 favored an increase in safety and security, an increase in trees, redesign of downtown areas of the park and increased park exposure. Those above $29,000 strongly supported any efforts that would lead to west bank development.

	INCOME (QUES. 25)	
DESIGN IMPROVEMENTS (QUES. 17)	Under $29,000	Over $29,000
Increase active use areas	20.0	28.6
Increase leisure opportunity	24.0	14.3
Leave more natural areas	40.0	38.1
Increase safety/security	56.0	35.7
Stress linkages to downtown	32.0	26.2
Stress west bank development	36.0	66.7
Increase water use opportunity	32.0	31.0
Increase trees	56.0	40.5
Develop more private areas	16.0	14.3
Redesign downtown area of park	28.0	14.3
Increase variety of activities	24.0	28.6
Better relate area to surrndgs	8.0	19.0
Increase park exposure	52.0	28.6
Provide better access	32.0	40.5
Provide more shelters	20.0	26.2
Provide rental equipment	16.0	31.0
Increase social functions	28.0	38.1
Redesign bike paths	8.0	11.9
Upgrade maintenance	20.0	19.0
Increase signage	0.0	4.8
Increase parking	36.0	35.7
Increase rest areas	20.0	33.3
Add picnic facilities	48.0	50.0
%'S FROM TOTAL RESPONSE OF:	25	42

* $29,000 is the estimated median household effective buying income for Wichita, Kansas (Wichita Community Profile, 1987-1988).

Table IV-24 Cross Tabulation: "Income" by "Design Improvements"

The results presented in Chapter IV provide a wealth of information from which meaningful conclusions may be drawn. Having reviewed the more specific aspects of the research involving frequencies and comparisons among the research variables, a more general overview of the research implications as they relate to the overall intent of the study shall be discussed in Chapter V, Conclusions.

CHAPTER V
CONCLUSIONS

The final chapter of this thesis, Conclusions, begins with a brief overview of the intent and focus of the study. Following this synopsis, the remainder of the chapter will deal with four (4) sections: 1) Comparison of Results with Research Hypotheses, 2) Comparison of Results with Research Objectives, 3) Research Implications, and 4) Recommendations and Summary.

The purpose of this research was to evaluate the design of appropriate activity settings through an analysis of park use. The Arkansas River corridor park in downtown Wichita, Kansas served as a basis or setting for the research. The study focused on the relationship between Randolph Hester's user needs criteria of neighborhood space, namely appropriate activity settings, and the applicability of this specific criterion to park design.

The research attempted to evaluate design of a park through analysis of park user responses. Through analysis of park use, design solutions may be generated to better respond to user needs and to contribute to the success of the park.

It should be noted at this time that the major thrust of this thesis, as stated in the previous paragraphs, represents only a small portion of a much larger body of knowledge that could be tapped for further exploration into the subject of user needs in park design. There are a multitude of issues that enter into any design project, especially into one as large and complex as a semi-regional, multiple use facility such as the Arkansas River corridor park.

It should be emphasized that this research effort delves into only one aspect of Randolph Hester's eleven user needs criteria for park design. Many additional factors also enter into the scope and complexity of any subsequent design solutions.

The research focused on three objectives which are summarized in the following questions.

1. How can Randolph Hester's criteria for a successful neighborhood space, namely appropriate activity settings, be applied to the large urban park context?
2. How can one best measure appropriate activity setting use in order to understand and improve design of the park?
3. How important is the designer's attention to user needs in park design?

These research objectives served as a framework for the hypotheses. With these objectives in mind, the following hypotheses were generated.

1. The park activity settings may be used in any number of ways, thus, the design of varied activity settings in the park strongly influences how the space is used.

2. Public use of this large urban park will show positive correlation to Hester's findings on public use in smaller neighborhood spaces.

The remainder of this chapter is devoted to a review of the researcher's precepts and conclusions as drawn from the study results and the general research process.

Comparison of Results with Research Hypotheses

Through synthesis of the data that were presented and interpreted in Chapter IV, Results, a more detailed analysis of the research hypotheses can be examined. The results provide varying degrees of support for the research hypotheses, as previously stated. A discussion of the conclusions concerning each hypothesis follows.

It was found that the anticipated results and the actual results of this study both reinforced the hypothesis that design of varied activity settings in the Park strongly influence how the space is used. Although, support for this hypothesis seemed obvious as the study progressed, several interesting findings surfaced questioning the limits of use in highly varied activity settings.

Several survey questions were specifically developed to determine how a variety of park settings influenced park use. From the results of these questions, it was generally found that the Arkansas River corridor park did provide adequate spaces and activities for a large portion of survey respondents. However, the opposing number of unfavorable responses must be taken into account, through recognition of the continuing need for design review and improvement.

The most significant finding regarding Hypothesis 1 rests in the concept that use does increase as activity settings increase, but only to a certain point. It is each individual's decision to determine at what point the park becomes overly saturated with activity. A cluttering of various use areas may signify an attempt to 'force' use of that area. But, in order for the facility to be most successful, there must be a natural desire to use its settings.

Hypothesis 2 dealt with the contrast of public use at two differing scales, the large urban park and the small neighborhood park. Randolph Hester's work involved considerable research on user needs and design of small 'left over' spaces. His studies stressed social suitability and user needs as the major determining factors in the success of neighborhood spaces. He introduced a systematic approach to developing successful spaces, which provides the design professional many avenues for consideration.

The only major elements that separate Hester's work from this research are the scope and scale of the projects. However, the major unifying constant is park use. All parks and activity spaces have a certain potential for public use depending on the scale and scope of the project. The numbers and varieties of activity spaces may vary, however, the success of a space is determined by use and not by size. The overall success of the park depends on the contributions of each individual unit or setting. This is what makes every park unique. As Hester freely admits, this, along with ever changing user needs, are major barriers in developing a 'failsafe' approach to park design (Hester 1984).

As was evidenced in the survey results Chapter IV, people use a space for any number of reasons. By taking into account the scale and scope of a space, whether it be a small empty lot or a large city park, the underlying constant, use, remains.

Comparison of Results with Research Objectives

The research objectives, as listed previously in this chapter, serve to uncover peripheral information which contributes to the general focus of the research. The following discussion will relate how each objective contributed to the research.

The first research objective deals with the user needs criteria of neighborhood spaces and the application of these needs to the large urban park context. For the purpose of this study one user need, namely appropriate activity settings, was selected as the common link between the neighborhood park and the large urban park.

Hester found that in small spaces, the location and the site characteristics played major roles in the determining public use of a space. As to location, people are most often concerned about the compatibility of the surrounding neighborhood with the desired activities (Hester 1984). Probably most important to the user are the characteristics of the space itself. What is available for me to use? Can I do the things I want to do there?

Hester found that these factors were critical elements in determining the use and resulting success of any given space. The work of Hester is easily generalized to any setting regardless of scale. Activity settings may be as simple as a park bench or a shaded front porch, or as complex as a linear trail system or a riverfront plaza.

The binding element is the user; what the user wants to do in the space and how the user interacts with the space. Any design solution can't have 'everything for everybody'. It is the researcher's intent to emphasize the idea that in any given design project, the constraints of the land, the influence of surrounding land uses and the desires of the public, all play major roles in determining the best design solution. As was stressed previously, a variety of activity settings provides opportunity for creative involvement by a great number of people. The amount of individual participation in the park settings is solely the decision each user.

The second objective is concerned with the measurement of park use and its implications on design improvement. Measurement techniques involved a visual evaluation followed by the recording of information on observation data forms. Although consistency and significant results are very difficult to monitor using this method, observation does provide immediate answers concerning park use.

Park use was also measured through use of the survey instrument. A variety of questions not only allow for analysis of park use, but also allow insight into why one uses the park or how the park could better suit his or her needs. It was through the survey instrument that the most reliable information was uncovered. The survey provided a means through which user perceptions to more intangible items, such as design and future park use, could be obtained and analyzed.

Objective 3 questions the importance of the designer's attention to user needs in park design. This is a key issue in determining the potential success of any space. The designer must be responsive to the needs of the users. All too often the designer relies on his or her elitist criteria rather than on the needs of the user. These two ideals are often quite different. Whereas the designer is more concerned with "hardware" - how the forms look, how materials connect and weather, and how circulation works- the users are more concerned about being safe, being with their friends or expressing their emotions (Hester 1984). Through his research, Hester found that by concentrating on aesthetics, the design profession all to often ignored those factors that make a space suitable and usable.

One guideline for developing spaces that are responsive to user needs would be to provide the necessary structure while permitting both long-term flexibility and multiple uses. Any development proposal should stress the need for adaptability of activities and of activity settings. The freedom to chose a preferred activity certainly is more appealing than having the setting dictating the activities that should occur in that space. Both adaptive and fixed spaces are essential in design of any space, however, the balance between the two should reflect the general consensus of its users.

Research Implications

The following text will examine several significant findings that help make sense of the extensive data collected. Most of these conclusions do not specifically relate to any particular aspect of the research, but are a culmination of ideas and prospects that arose throughout the data analysis phase.

With regard to the overall success of the park, perhaps the most important question that may be asked is, Does the Arkansas River corridor park satisfy the needs of the public? From an overall review of the results, the answer is yes, it does satisfy user needs. Nearly all users display at least a moderate degree of satisfaction with the park and its current settings. But, could the park better serve the needs of its users? Again the answer is yes. A major purpose of any public park or open space is to provide a wealth of opportunity that satisfies the physical, emotional and social needs of its users. The major obstacle becomes, How is the best way to achieve that ultimate goal?

The City of Wichita, Kansas recently secured the services of a notable multi-disciplinary design firm, RTKL Associates of Dallas, Texas to provide a master plan for the redevelopment of downtown Wichita, including the

Arkansas River corridor park. The tentative proposal (a portion of which is seen in Figure II.3), suggests extensive development to occur in most areas of the Arkansas River corridor park. Although several of the present amenities and many areas of the bike paths will remain intact, the encroaching development seems to squeeze out most of the existing open space. In addition, high density housing on either side of the Arkansas River seems to negate many of the pleasantries of the presently more natural areas of the park.

The desire for retention of more natural areas and open space within the park were two areas receiving considerable support from the public. To its credit, Wichita has retained much of its downtown open space areas. These areas provide little source of income and do not necessarily attract those who prefer more structured or urban settings. However, these areas do provide a visual continuity of green space throughout the downtown area and they do provide a variety of activity settings for a large majority of Wichita residents to enjoy.

The results of the survey showed park users to have a considerable desire to maintain open spaces. Perhaps the roominess and openness which signify the Kansas landscape are reflected in the public's desire to retain similar traits in the Arkansas River corridor park.

It is ultimately the designer's responsibility to provide a solution that is functional, yet, balances the fixed space and adaptable space requirements with regard to the needs of the user. The omission of any of these factors may result in a simple design solution but the resulting finished product will undoubtably fail. Quick fix or poorly thought out solutions often lead to an inadequate finished product. The test for design success will ultimately rest with the user. This again raises the question, At what point do the number of activity settings cease to attract use? Development proposals crammed full of fixed activity spaces may not fulfill the needs of many users. Use of the space no longer exudes that feeling of symbolic ownership or personal identification with the park.

The overall number of respondents who returned the survey may reflect the caring attitude about the Arkansas River corridor park and its future. Considering the timing and other inconsistencies that could influence the return rate, the 36.4% response rate was excellent. Even though the survey took a fair amount of time to complete, nearly every returned survey was complete. Many respondents even spent the time to express their concerns regarding the park and its future.

After complete review of the results, few real surprises were evident. Very few results stood out as being significantly different that would be expected. This was rather unsettling news to recognize that the results did not bring forward several major controversies. However, after further consideration, the consistency of the results led directly toward a quite logical realization, that **park use reflects user satisfaction.** As the study has revealed, the major determinant of the success of a park is use. The Arkansas River corridor park is used by a great number of people (see Tables IV-1, IV-2 and IV-3). Due to the fact that the park borders very little residential land use, most persons have to make an effort to get to the park. The majority of people use the park for extended periods of time and use a variety of settings while there. Significant support for the Arkansas River corridor park is quite evident.

Through review of the scope of this research in relation to any subsequent research efforts, several areas for future study may be identified. It is the researcher's intent to recognize the limitations of any work in related endeavors and the exhaustive list of ideas and variables to explore before fully understanding the breadth of any given project.

This research explores only one factor of Randolph Hester's eleven user needs that are commonly considered in the design process. Although this factor was chosen because it best demonstrated the differences and similarities of neighborhood spaces and larger urban park, each of the other factors demand full attention in order to more fully understand the 'whole' situation.

Many interesting approaches to further understanding use and perceptions of the park could be addressed through studies targeting different populations.

One such approach could involve information gathered through on site interviewing. More spontaneous response to park use could be identified. Another advantage could be that the interviewing technique would focus on those persons actually using the park and would not depend on responses from those who seldom use it. All considered, a combination of several data gathering techniques seems to be the most informative and accurate measure for further research.

Through use of interviewing or survey techniques, future studies may target several population groups in order to uncover more specific use of the Arkansas River corridor park. Since the park connects to various land uses, it may be interesting to identify how persons involved with differing viewpoints may respond to park use and design. For instance, the business community (downtown core) may have completely different ideas of what the park should offer than the residential community surrounding the park. It would also be interesting to compare the design aspirations of the park 'managers', (those decision makers closely involved with the past and future of the park), with the design aspirations of the actual users of the park.

Recommendations and Summary

The primary goal of this research was to uncover user needs data which questioned the need for redesign of the Arkansas River corridor park. The relatively undeveloped Arkansas River corridor provides the city of Wichita with a unique situation. Most river cities long ago crammed their waterfronts full of a multitude of land uses. The Arkansas River corridor however, faces a crucial period in its development process. Since user needs have been found to be one of the most powerful design considerations, concerted efforts should be made to respond to these needs.

> "Everyone shares common needs with each other, but each person also has unique needs and ways of expressing and satisfying those needs. The success of neighborhood design involves balancing common needs and individual ones. Knowing what shared needs to expect is important, but discovering the unique needs of a neighborhood is a key to socially suitable design" (Hester 1984, 57).

Randolph Hester recognizes the difficult task the designer must face. It is the designer's responsibility to provide a framework for the park and its various settings that allows for enactment of personal productions - be they creative, contemplative, athletic, or merely restful. Designers also must determine what activity settings the users want, what activities the site is capable of supporting and how to communicate this to the users.

It is interesting to note recent efforts by the design professions to become more concerned about and sympathetic to user needs. These recent trends point to citizen participation in the design process as a major contributor to project success. The realization that, often the success of a design is dependent on response to user needs, should lead to more cooperative design efforts.

The ultimate challenge of the designer is to learn the basics of planning parks for people and then use them to help solve park design problems. This means determining as many facts as possible about potential users and their program needs - and indeed any special park areas. Then based on analysis of these facts, the designer must plan facilities to meet the needs of the users (Hultsman, 1987).

With this seemingly simple premise in mind, it is the researcher's hope that all design professionals give thoughtful consideration to inclusion of user needs in the design process. It is our moral and professional responsibility to the public.

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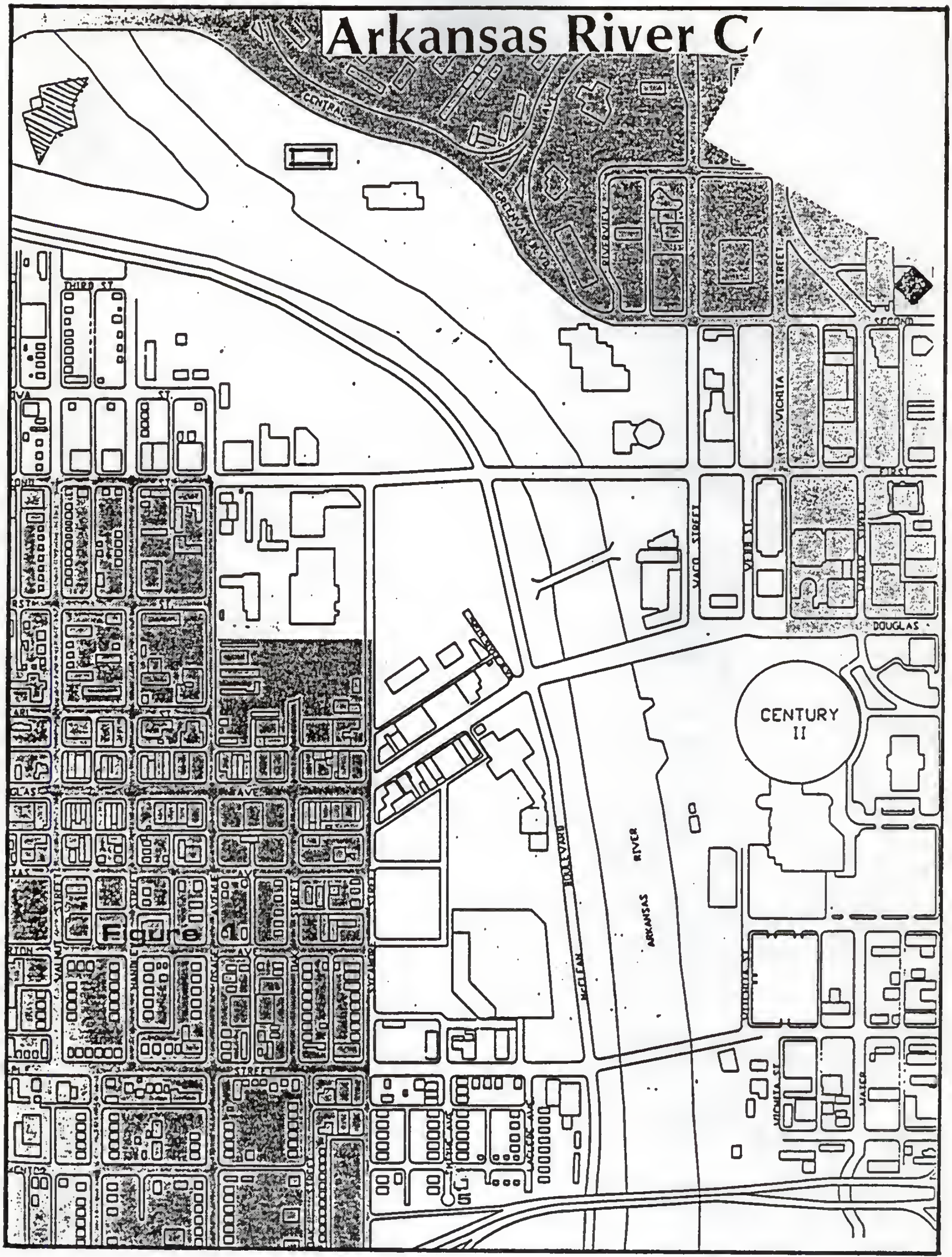
APPENDIX A
OBSERVATIONAL DATA RECORDING SHEET



Arkansas River C
CENTRAL
GREENWAY BLVD.
AVE
STREET
SECOND
THIRD ST.
WICHITA
FIRST
WACO STREET
DOUGLAS
CENTURY II
BOULEVARD
MCLEAN
ARKANSAS
RIVER
WICHITA ST.
WATER

Figure 1

APPENDIX B
COVER LETTER AND SURVEY

2104 Prairie Lea Place
Manhattan, Kansas 66502
December 3, 1988

Dear

I am a graduate student attending Kansas State University, working toward a Master of Landscape Architecture degree. This survey is part of my thesis work. The intent of my research is to determine how people use various areas and settings in the Arkansas River Corridor Park and what their opinions are toward these areas of the park. From this information, more appropriate design and planning considerations may be developed to better serve park users in the future.

You are one of a small number of Wichita residents being asked about your use of the Arkansas River Corridor Park. Your name was selected from a random sample of all Wichita residents. It is important that each questionnaire be completed and returned so that the results will truly represent the thinking of all persons in Wichita.

I am asking that you set aside 15 minutes and participate in my research by completing the enclosed survey. Your participation is completely voluntary and you may be assured of complete confidentialty. The questionnaire has an identification number for mailing purposes only. Your name will never be placed on the questionnaire. While your participation in this survey may not have immediate benefits, it may be helpful in generating information for future park design and improvements. A self addressed stamped envelop is enclosed for your convenience in returning the completed survey.

I would be most happy to answer any questions you might have. Please write or call. My telephone number is (913) 776-9136. You can expect to reach me most likely between the hours of 5:00pm and 11:00pm.

I look forward to your participation in this study. Thank you very much for your assistance.

Sincerely,

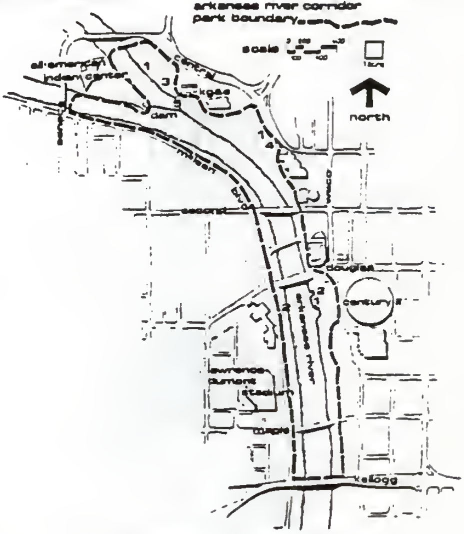
Mark G. Wendland
Graduate Student

Richard H. Forsyth
Professor and Major Professor

enclosures

The intent of this survey is to generate information which will help strengthen our understanding about public use and possible future design considerations of the Arkansas River Corridor Park in Wichita, Kansas.

For the purposes of this study, the Arkansas River Corridor Park will include the area from Kellogg overpass north to the Central Avenue and Seneca Avenue bridges and from McLean Boulevard on the west to the edge of downtown on the east. The study area is outlined on the map to the right.



Please answer all of the questions carefully. All responses will be kept confidential. If you wish to comment on any questions or qualify your answers, please feel free to use the space in the margins. Your comments will be read and taken into account. Thank you for taking time to complete this questionnaire.

***NOTE – An "activity setting" is defined as a physical feature in the park that is used for any type of activity. Examples may include a bench, the bike paths, the fountain areas, open lawn areas, etc.

I. General Information – These questions will address your relationship with Wichita and your general use of the Arkansas River Corridor Park.

1. How long have you lived in Wichita? ____________________

2. Approximately how long does it take to drive to the Arkansas River Corridor Park from your home? ____________________

3. How do you use the park most frequently? (Check one)

_____ BY MYSELF
_____ WITH ONE OTHER PERSON
_____ WITH A SMALL GROUP OF 3 TO 5 PERSONS
_____ WITH A GROUP OF 5 TO 10 PERSONS
_____ WITH LARGE GROUPS OF 10 OR MORE

4. During an average visit, approximately how long do you spend using the Arkansas River Corridor Park?____________________

5. Do the activity settings or park facilities provide opportunities for involvement by a variety of people?

_____ YES
_____ NO
_____ SOMEWHAT

II. Park Comparison - This part of the survey will help us learn about your use of various types of parks.

6. What percentage of your leisure time do you spend in each of the following types of parks? (total should be 100 percent or less)

_____% LARGE URBAN PARK
_____% NATURAL AREA PARK
_____% MEDIUM SIZE COMMUNITY PARK
_____% SMALL NEIGHBORHOOD PARK (INCLUDING PLAYGROUNDS)
_____% OTHER, PLEASE SPECIFY _____________________________

7. Do you prefer small neighborhood parks to large urban parks such as the Arkansas River Corridor? (Check one)

_____ YES
_____ NO
Why or why not? Explain:_____________________________
____

III. Park Use - A major purpose of this study is to determine how people use the various activity settings in the park. So, next we would like to ask several questions about your specific use of the Arkansas River Corridor Park.

8. What activity settings in the park do you use? (Check all that apply)
*** Numbers following a response correspond to related areas on map.

_____ LINEAR BIKE/WALKING PATHS
_____ PLAZA OR PAVED AREAS (1)
_____ FOUNTAIN AREAS (2)
_____ WATER
_____ WATER'S EDGE
_____ CONVENIENCE STATIONS/REST STOPS
_____ AREAS BENEATH RIVER BRIDGES
_____ JOAN OF ARC MEMORIAL - STATUE AND POOL (3)
_____ OTHER (PLEASE SPECIFY)_____________________________
____
_____ OPEN AREAS
_____ SHADED AREAS
_____ SECLUDED AREAS
_____ PARK BENCHES
_____ VETERANS MEMORIAL (4)
_____ DAM/STATION HOUSE AREA (5)

9. Which of the following best describes your current use of the Arkansas River Corridor?

_____ DAILY
_____ 2 TO 3 TIMES PER WEEK
_____ 1 TIME PER WEEK
_____ 1 TIME PER MONTH
_____ SEVERAL TIMES PER YEAR
_____ ONE TIME PER YEAR
_____ NEVER

*****Please check the response which best completes the way you feel about the following statements. (Questions 10 and 11)

10. "If I lived closer to the park my use would ______."

_____ INCREASE GREATLY
_____ INCREASE SLIGHTLY
_____ REMAIN THE SAME
_____ DECREASE SLIGHTLY
_____ DECREASE GREATLY

11. "If the park offered more activities my use would ______."

_____ INCREASE GREATLY
_____ INCREASE SLIGHTLY
_____ REMAIN THE SAME
_____ DECREASE SLIGHTLY
_____ DECREASE GREATLY

12. The primary reasons you use the Arkansas River Corridor are because it is: (Check all that apply)

_____ Convenient
_____ A pleasant space to use
_____ A good place to meet people
_____ Close to where you live
_____ Close to where you work
_____ A place to relax and get away
_____ A great place to exercise
_____ A nice place to spend leisure time
_____ A place that offers freedom to do as you wish
_____ A connecting route to other places
_____ The setting of special events, i.e. River Festival, etc.
_____ Other (please specify)________________________________

_____ Aesthetic
_____ Clean
_____ Well maintained
_____ Where the action is
_____ Safe
_____ Unique

IV. Park Design - The following questions seek to determine your impression of current park design and how improvements could be implemented.

13. Does the park provide adequate spaces in which to do the activities you want to do? (Check one)

_____ YES
_____ NO

14. Which response best describes how the various activity settings you use "fit in" with other park features?

_____ VERY WELL
_____ FAIRLY WELL
_____ SOMEWHAT
_____ NOT AT ALL

15. Do you prefer the more natural settings over the more structured settings i.e. fountains, memorials, etc.) in the park? (Check one)

_____ YES
_____ NO

16. Are the settings for the activities you want to do available in the park? (Check most appropriate response)

_____ YES
_____ MANY ARE
_____ FEW ARE
_____ NO

17. If given the opportunity to renovate the Arkansas River Corridor, what improvements would you make? (Check all that apply)

_____ Design more active use areas
_____ Increase leisure opportunity
_____ Leave more natural areas
_____ Increase safety and security
_____ Stress linkages to downtown
_____ Stress west bank development
_____ Increase water use opportunity
_____ Increase trees
_____ Develop more secluded/private areas
_____ Redesign downtown areas of park
_____ Provide greater variety of activity settings
_____ Better relate activity areas to surrounding uses
_____ Increase park exposure to public
_____ Provide better access by foot/bike/car
_____ Provide more shelter from the environment
_____ Provide rental exuipment
_____ Increase social functions
_____ Others (please specify)______________________________
____
____

_____ Redesign bike paths
_____ Upgrade maintenance
_____ Increase signnage
_____ Increase parking
_____ Increase rest areas
_____ Add picnic facilities

18. Following redesign of the park, would you anticipate general park use to: (Check one)

_____ INCREASE
_____ INCREASE AND THEN LEVEL OFF
_____ REMAIN THE SAME
_____ DECREASE

19. Do you feel that the park settings were designed with: (Check most appropriate response)

_____ YOU IN MIND
_____ OTHER INDIVIDUALS IN MIND
_____ LARGER GROUPS IN MIND
_____ LITTLE REGARD TO WHAT THE PUBLIC WANTED

V. Park User Characteristics - The following questions will help us learn more about what kinds of people use the Arkansas River Corridor. All of your answers are strictly confidential and cannot be associated with you personally.

20. What is your present age? (Check one)

_____ 18 TO 25 YEARS
_____ 26 TO 40 YEARS
_____ 41 TO 65 YEARS
_____ OVER 65 YEARS

21. What is your sex? (Check one)

_____ MALE
_____ FEMALE

22. Which of the following best describes your ethnic identification?

_____ BLACK OR AFRO-AMERICAN
_____ ORIENTAL OR ASIAN
_____ AMERICAN INDIAN OF NATIVE AMERICAN
_____ CHICANO OR MEXICAN AMERICAN
_____ WHITE OR CAUCASIAN
_____ OTHER (PLEASE SPECIFY)_____________________________

23. What is the highest level of education that you have attained? (Check one)

_____ SOME ELEMENTARY SCHOOL
_____ SOME HIGH SCHOOL
_____ HIGH SCHOOL DIPLOMA
_____ SOME COLLEGE OR POST HIGH SCHOOL
_____ VOCATIONAL OR TECHNICAL SCHOOL
_____ BACHELORS DEGREE
_____ GRADUATE DEGREE

24. What do you do for a living?_____________________________

25. Would you please give us an estimate of your annual family income before taxes? (Check one)

_____ LESS THAN $10,000
_____ $10,000-$14,999
_____ $15,000-$19,999
_____ $20,000-$24,999
_____ $25,000-$34,999
_____ $35,000-$49,999
_____ $50,000-$99,999
_____ $100,000 OR MORE

***Please feel free to make any comments in the space provided below.

Your contribution to this effort is greatly appreciated. If you would like a summary of the survey results, please print your name, address, and "Results Requested" on the back of the return envelop. I will see that you get it. THANK YOU.

APPENDIX C
OPERATIONAL DEFINITIONS

Operational Definitions

For the purpose of this study, specific meanings have been associated with the following terms and concepts.

1. Appropriate Activity Settings: One of a list of user needs criteria developed by Randolph Hester in Planning Neighborhood Space With People; these settings are determined by the physical aspects of neighborhood space - the location and the site characteristics. Location concerns the compatibility of surroundings with the desired activities in the park, while site characteristics concern what actually exists on the site.

2. Neighborhood Space: That territory close to home which, because of the residents' collective responsibility and frequent shared use, is considered to be their "own" (Hester 1984).

3. Open Space: a valuable resource made available for public use.

4. Park: a specialized use of open space; piece of land or water set aside for recreation of the people (Doell 1963, p. 5).

5. Recreation: refreshment of the mind or body through some means which is in itself pleasureful (Doell 1963, p. 3).

6. User: All those who interact with the park in any way (Lynch 1985).

7. User Needs: Pattern of personal preferences derived directly from the user of a given facility.

AN EVALUATION OF DESIGN FOR APPROPRIATE ACTIVITY SETTINGS THROUGH ANALYSIS OF PARK USE

By

Mark Gregory Wendland

B.A., Westmar College, 1977

An Abstract of a Thesis

Submitted in Partial Fulfillment of the

Requirements for the Degree

Master of Landscape Architecture

Department of Landscape Architecture

KANSAS STATE UNIVERSITY
Manhattan, Kansas

1989

ABSTRACT

The purpose of the research is to evaluate the design of appropriate activity settings through an analysis of park use. The Arkansas River corridor park in downtown Wichita, Kansas will serve as a basis or setting for the research. The study focuses on the relationship between Randolph Hester's user needs criteria of neighborhood space, namely appropriate activity settings, and the applicability of this specific criterion to park design.

Randolph Hester, a landscape architect and member of the faculty in landscape architecture at the University of California at Berkeley, is a nationally recognized figure in researching user needs and environmental design. His book, Planning Neighborhood Space with People (1984), focuses on small parks and open spaces and stresses social suitability and user needs as the major determining factors in the success of neighborhood spaces.

This research attempts to evaluate design of a park through analysis of observational data and park user responses. A city-wide random survey of Wichita residents was conducted for this study. The mail survey procedure coincided closely with the "Total Design Method" as described by Donald Dillman in his book, Mail and Telephone Surveys: The Total Design Method (1978). Following synthesis of the observation and survey results regarding the use of various activity settings within the park, strategies for design improvement were developed.

Inferential statistics were used as a primary tool to help make educated guesses on the basis of the relatively small samples of data. Sampling distributions were obtained through use of response frequencies and cross tabulations.

Data analysis showed that public use increased as the variety of activity settings increased, but only to a certain point. Each participant must determine at what point the park becomes overly saturated with activities and no longer fulfills his or her needs. The observational data and survey results provided information that endorsed the current park and its settings. The high response rate was also an indicator of general satisfaction with the park. The survey results produced no real surprises. This fact was unexpected but it led to a quite logical explanation that summarizes the thesis conclusions, that current park use reflects user satisfaction with the Arkansas River corridor park.